# CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES

This chapter describes how the existing environmental, social, and economic conditions within the project area would be affected by the No-action Alternative or Alternative C or Alternative D. The National Environmental Policy Act (NEPA) of 1969 requires consideration of direct, indirect, and cumulative impacts plus measures to mitigate the impacts. These impacts are described as follows:

- **Direct effects** (or impacts) are caused by the project and occur at the same time and place (40 CFR 1508.8). These are discussed in each resource area subsection.
- **Indirect effects** (or impacts) are caused by the action and occur later in time or farther removed in distance, but are still reasonably foreseeable (40 CFR 1508.8). Indirect effects are generally not quantifiable but can be reasonably predicted to occur. These impacts are described in each resource area subsection.
- **Cumulative impacts** are the impacts to the environment which result from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions (40 CFR 1508.7). These are addressed in Section 4.24.

## 4.1 LAND USE

### 4.1.1 No-action Alternative

#### Direct Impacts

Selection of the No-action Alternative would be inconsistent with planned land uses because the Syracuse City General Plan has been developed assuming that Syracuse Road would be widened to five lanes. With the selection of the No-action Alternative, there would not be immediate conversion of agricultural, commercial, and residential properties to roadway right-of-way. The land adjacent to the project is changing from agriculture and residential use to commercial use, and this is expected to continue with most of the adjacent land being used for commercial properties, except for residential areas on the north side from 1100 West to approximately 1500 West and on the south side for the lots adjacent to Allison Way. This alternative would not facilitate commercial development and may slow down the time frame of development.

The No-action Alternative would not affect any existing or planned open spaces, parks, or recreation facilities within the project area.

#### Indirect Impacts

The following changes in future land use could be expected.

- The land north of Syracuse Road between Allison Way and 1860 West would probably develop slower under the No-action Alternative than under a build scenario and the type of use could change to residential rather than commercial.
- The land south of Syracuse Road between Allison Way and 1800 West may not develop as commercial use because the existing residential structures would remain and the

economics to develop the deep lots into commercial use would change. Possible future land use with the No-action Alternative includes the homes remaining the same, additional residential development filling in the back side of the deep lots, or the existing homes being removed for construction of either commercial or residential development. Development could occur later under the No-Action Alternative than would be expected if Syracuse Road were improved, especially if Alternative C were selected which would remove the south-side residential structures on deep lots.

- It is anticipated that the planned commercial development near the 1000 West and 2000 West intersections would be the same with a No-action Alternative. This would include the south side from 1000 West to Allison Way. The timing of development is not expected to change.
- It is not expected that there would be much change to other planned commercial or residential development throughout the city.

### 4.1.2 Alternative C

**Direct Impacts**

Construction of this alternative would widen the existing roadway, which would convert some land to roadway use. Widening the roadway would change some residential, commercial, and agricultural property to roadway use. This would include 3.0-ac of residential property, 1.3-ac of commercial property, and 2.8-ac of farmland. Parks and recreational facilities within the project study area would not be affected.

**Indirect Impacts**

Alternative C is consistent with the planned land uses in the project area. The land adjacent to the project is changing from agriculture and residential use to commercial use, and this is expected to continue with most of the adjacent land being used for commercial properties, except for residential areas on the north side from 1100 West to approximately 1500 West and on the south side for the lots adjacent to Allison Way. It is not anticipated that selection of this alternative would change the time frame or type of commercial development near the 1000 West and 2000 West intersections, including the land south of Syracuse Road from 1000 West to Allison Way. Construction of this alternative would facilitate commercial development and may speed up the time frame of development on those properties on the south side of Syracuse Road from Allison Way to 1800 West where homes are removed and the remainder of the property will accommodate commercial development.

### 4.1.3 Alternative D

**Direct Impacts**

Construction of this alternative would widen the existing roadway to the north, which would convert some land to roadway use. Widening the roadway would change some residential, commercial, and agricultural property to roadway use. This would include 5.5-ac of residential property, 1.5-ac of commercial property, and 0.3-ac of farmland. The residential area adjacent to Syracuse Road on the north side from 1100 West to approximately 1500 West would be used for roadway use rather than residential use. Residential properties on the south side of Syracuse

Road would remain. Parks and recreational facilities within the project study area would not be affected.

**Indirect Impacts**

Alternative D is consistent with the planned land uses in the project area. The land adjacent to the project is undergoing change from agriculture and residential use to commercial use, and this is expected to continue, with most of the adjacent land being used for commercial properties. It is not anticipated that selection of this alternative would change the time frame or type of commercial development near the 1000 West and 2000 West intersections, including the land south of Syracuse Road from 1000 West to Allison Way. Construction of this alternative would facilitate commercial development and may speed up the time frame of development on those properties on the north side of Syracuse Road from Allison Way to 1860 West where homes are removed and the remainder of the property, combined with seven acres of agricultural land, will accommodate commercial development.

### 4.1.4 Mitigation

No mitigation is required.

## 4.2 FARMLANDS

Syracuse is considered an "urbanized area" according to the Census Bureau Map. No areas of prime, unique, or statewide important farmland have been identified. Agriculturally zoned land exists within the project area. Currently, approximately 64 acres of farmland adjacent to Syracuse Road are under cultivation. Syracuse's General Plan anticipates conversion of land along the project corridor from agricultural to commercial and high density residential.

### 4.2.1 No-action Alternative

**Direct Impacts**

The No-action Alternative would not directly affect agricultural land along the corridor.

**Indirect Impacts**

Figures 3-1 and 3-2 illustrate the planned conversion of agricultural parcels to commercial and residential uses. This conversion would occur under the No-action Alternative, Alternative C, or Alternative D although the timing of individual conversions may change if Syracuse Road is not improved as proposed.

### 4.2.2 Alternative C

**Direct Impacts**

Alternative C would require approximately 2.8 acres of farmland:

- 0.24-ac of right-of-way from the agriculturally zoned land at 1565 West 1700 South
- 1.3-ac of right-of-way from the agriculturally zoned land at 1379 West 1700 South
- 1.3-ac of right-of-way from the agriculturally zoned land at 1760 South 1000 West

Farming operations at these locations would still be viable, since 92.5% of the total acreage (3.2-ac) of the parcel at 1565 West 1700 South, 96% of the total acreage (36.5-ac) of the parcel at 1379 West 1700 South, and 92% of the total acreage (16.8-ac) of the parcel at 1760 South 1000 West would remain intact. The needed right-of-way is at the edge of the fields and does not split the parcels. Access to the land would be maintained.

**Indirect Impacts**

An improved transportation facility could speed up development of the farmland on Syracuse Road. This could include conversion of up to 64-ac of farmland to commercial use.

### 4.2.3 Alternative D

**Direct Impacts**

Alternative D would require approximately 0.32 acres of right-of-way from the agriculturally zoned land located at 1600 West 1700 South. Farming operations at this location would still be viable, since more than 95% of the total acreage (7-ac) of the agriculturally zoned parcel would remain intact, and access to the land would be maintained. The needed right-of-way is at the edge of the field and does not split the parcel.

**Indirect Impacts**

An improved transportation facility may speed up development of the farmland on Syracuse Road. This could include conversion of up to 64-ac of farmland to commercial use.

### 4.2.4 Mitigation

- The Utah Department of Transportation (UDOT) will maintain access to existing farmlands.
- Needed right-of-way will be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
- Any potential effects of the Syracuse Road roadway widening to water delivery or irrigation systems associated with agricultural areas will be mitigated. These facilities will be relocated and reconstructed to maintain the continuity and use of the existing systems.

## 4.3 SOCIAL CONDITIONS

### 4.3.1 No-action Alternative

**Direct Impacts**

A decision to adopt the No-action Alternative would leave existing social conditions and trends in the study area intact.

Residents living along Syracuse Road would still be frustrated by the current traffic volumes and congestion along the roadway. Residents of other neighborhoods located north and south of the corridor who frequently drive on Syracuse Road would still be frustrated by traffic congestion. Changes that have already affected these neighborhoods have all but eliminated the small-town, rural character that originally attracted many residents to the area. Concerns about students who

must walk along, cross, or drive on Syracuse Road when going to and from school would not be addressed, since portions of the corridor would remain without sidewalks.

**Indirect Impacts**

Anticipated future population growth and associated residential and commercial development in the community would continue, contributing to further reduction in open space, continued erosion of the rural and small-town lifestyles that many local residents value and wish could be preserved, and increased traffic flows on roadways throughout the city.

Residents living along Syracuse Road would continue to be frustrated by growing traffic volumes and congestion along the roadway. Residents of other neighborhoods located north and south of the corridor who frequently drive on Syracuse Road would continue to be frustrated by traffic congestion. Changes that have already affected these neighborhoods have all but eliminated the small-town, rural character that originally attracted many residents to the area. Such changes would continue under the No-action Alternative, leaving many residents increasingly dissatisfied. Concerns about students who must walk along, cross, or drive on Syracuse Road when going to and from school would not be addressed, since portions of the corridor would remain without sidewalks. Increased traffic volumes during peak use periods would cause more congestion and safety concerns that are exacerbated by the current two-lane road configuration.

Because current traffic conditions and associated congestion and noise are important sources of dissatisfaction to many residents on Syracuse Road, a growing number of those living along the corridor would likely decide to relocate in the coming years, either selling homes or managing them as rental properties. Consequently, even under the No-action Alternative, the neighborhoods immediately adjoining the roadway would likely exhibit increased residential turnover in the coming years, with associated declines in levels of familiarity and interaction among neighborhoods.

## 4.3.2 Alternative C

**Direct Impacts**

This alternative may require the relocation of 23 residences, one residence/business, and one business, and would concentrate relocation impacts on the south side of the corridor (18 out of the 25 potential relocations). Survey data indicate that residents living in homes adjoining the south side of the corridor exhibit strong localized social attachments, are more likely to have lived in their homes for over 10 years, know more of their nearby neighbors, have more close friends in the neighborhood, and are more concerned about neighborhood deterioration as a result of road reconstruction than are those living on the north side. Fewer residents living on the south side anticipated moving in the next two to three years (33.3%) than was the case among those living on the north side of the corridor. Such conditions suggest that there is more potential for disruptive social impacts among residents on the south side of the corridor than among those on the north side. However, responses to the survey question which asked respondents whether they would be sorry to move away from the neighborhood appear to be somewhat inconsistent with this conclusion – residents on the south side were less likely to indicate they would be sorry to leave (57.2%) than residents on the north side (68%).

One social attribute of this alternative would be providing a safe facility. The alternative is designed to meet current American Association of State Highway and Transportation Officials (AASHTO) design standards to help reduce the potential for traffic collisions. Raised medians at major intersections on urban arterials have been shown to reduce accidents. Thus, raised medians with barrier-type curbing would be installed near the 1000 West and 2000 West intersections to reduce collisions resulting from left turns within the dedicated left-turn lanes. The raised medians would be approximately 300 feet in length and placed in conjunction with the dedicated left-turn lanes for these intersections (all four dedicated left-turn lanes for the Syracuse Road – 2000 West intersection and the dedicated left-turn lanes on Syracuse Road for the Syracuse Road – 1000 West intersection). The raised medians would limit left turns for some residences and businesses near these intersections, and would have a minor affect on traffic patterns.

**Indirect Impacts**

Syracuse Road is currently used as a boundary for churches and other organizations. The expansion of Syracuse Road to five lanes may increase its use as a boundary for schools, churches, and other community organizations. Additional use of Syracuse Road as an organizational boundary could reduce the amount of social interaction across Syracuse Road if opportunities to interact within schools, churches, and community organizations change.

### 4.3.3 Alternative D

**Direct Impacts**

This alternative may require the relocation of 41 residences, one residence/business, and two businesses. All of these potential relocations would be on the north side of Syracuse Road. Survey data indicate that residents living in homes adjoining the north side of the corridor are less likely to have lived in their homes for over 10 years, know fewer of their nearby neighbors, have fewer close friends in the neighborhood, and are less concerned about neighborhood deterioration as a result of road reconstruction than are those living on the south side. More residents living on the north side anticipated moving in the next two to three years (42.3%) than was the case among those living on the south side of the corridor (33.3%). Such conditions suggest that there is less potential for disruptive social impacts among residents on the north side of the corridor than among those on the south side. However, responses to the survey question which asked respondents whether they would be sorry to move away from the neighborhood appear to be somewhat inconsistent with this conclusions – residents on the north side were more likely to indicate they would be sorry to leave (68%) than residents on the south side (57.2%).

One social attribute of this alternative would be providing a safe facility. The alternative is designed to meet current AASHTO design standards to help reduce the potential for traffic collisions. Raised medians at major intersections on urban arterials have been shown to reduce accidents. Thus, raised medians with barrier-type curbing would be installed near the 1000 West and 2000 West intersections to reduce collisions resulting from left turns within the dedicated left-turn lanes. The raised medians would be approximately 300 feet in length and placed in conjunction with the dedicated left-turn lanes for these intersections (all four dedicated left-turn lanes for the Syracuse Road – 2000 West intersection and the dedicated left-turn lanes on

Syracuse Road for the Syracuse Road – 1000 West intersection). The raised medians would limit left turns for some residences and businesses near these intersections, and would have a minor affect on traffic patterns.

**Indirect Impacts**

Syracuse Road is currently used as a boundary for churches and other organizations. The expansion of Syracuse Road to five lanes may increase its use as a boundary for schools, churches, and other community organizations. Additional use of Syracuse Road as an organizational boundary could reduce the amount of social interaction across Syracuse Road if opportunities to interact within schools, churches, and community organizations changes.

### 4.3.4 Mitigation

Mature landscaping will be left intact wherever possible. Landscape features to remain will be identified in the final plans.

Resident concerns about the potential for reduced auto and pedestrian safety due to increased traffic volumes and traffic speed will be addressed through placement of continuous sidewalk between 1000 West and 2000 West, use of left-turn signals at major intersections, and the use of pedestrian crosswalk signals.

Concerns about the possibility of increased crime and delinquency will be partially alleviated through the addition of street lighting along the corridor. Certain types of lighting including decorative lighting may require cost participation by Syracuse City.

## 4.4 ENVIRONMENTAL JUSTICE

Due to the apparent low percentage of minority residents in the city-wide sample of the Community Social Assessment, along with the understanding that project impacts decrease as distance from the corridor increases, there is a low potential for disproportionate impacts to minority populations within the city. From the Community Social Assessment, no on-corridor respondents self-identified themselves as non-Caucasian, and no below-poverty households were identified along the corridor from the survey data provided by respondents. Also, Syracuse City has indicated that it is not aware of any minority or low-income based businesses in the project area. These conditions indicate that Environmental Justice issues are unlikely to emerge, since disproportionately high and adverse effects on minority or low-income populations would not occur. Thus the No-action Alternative, Alternative C, or Alternative D would not produce disproportionately high and adverse human health and environmental effects on minority populations or low-income populations.

Other environmental impacts as described throughout this chapter (such as air quality, noise, visual, construction, social, etc.) would occur in the same ways for all populations remaining on the corridor and would not disproportionately affect any minority or low-income families who would remain on the corridor.

### 4.4.1 Mitigation

No mitigation is required.

# 4.5 RELOCATIONS


Property acquisition would be required for Alternatives C and D. These include partial acquisitions (strip takes) as well as more substantial property takes that result in relocation of residences and businesses. A memo from UDOT Right-of-Way and Environmental (see memo dated April 15, 2005 in Chapter 8) defines a relocation as "those homes and businesses being directly impacted by a proposed alignment (i.e. the r/w line crosses the footprint of the structure) and proximity impacts (the r/w line does not cross the footprint but comes so close to the structure that it is not inhabitable)." A threshold of 15-ft has been used as a guideline to assess potential relocations for this EIS. Final determination of relocations will be determined during right-of-way acquisition and will include independent valuation of each property identified as a potential relocation.

## 4.5.1 No-action Alternative

### Direct Impacts

The No-action Alternative would not require any additional right-of-way or the relocation of any residences or businesses.

### Indirect Impacts

Much of the land adjacent to Syracuse Road is undergoing change from agricultural and residential use to commercial use. This is expected to continue and would require relocation of many residences to make way for commercial development, except for residential areas on the north side from 1100 West to approximately 1500 West and on the south side for the lots adjacent to Allison Way.

## 4.5.2 Alternative C

### Direct Impacts

Alternative C would require additional right-of-way for improvements to Syracuse Road. Construction of this alternative could relocate 23 residences, one residence/business, and one business along Syracuse Road. Table 4-1 lists the 23 residences, one residence/business, and one business that may require relocation as a result of Alternative C. These properties are shown in Figure 4-1.

**Table 4-1. Alternative C Potential Relocations.**

| Property # | North/ South Side | Address | Current Use |
|---|---|---|---|
| C1 | North | 1862 West 1700 South | Residence |
| C2 | North | 1828 West 1700 South | Residence |
| C3 | North | 1828 West 1700 South | Residence |
| C4 | South | 1797 West 1700 South | Business (J. Kelly Hansen Financial Planning/Quilt School) |
| C5 | South | 1765 West 1700 South | Residence |
| C6 | South | 1741 West 1700 South | Residence |
| C7 | South | 1729 West 1700 South | Residence |
| C8 | South | 1711 West 1700 South | Residence |

| Property # | North/ South Side | Address | Current Use |
|---|---|---|---|
| C9 | South | 1687 West 1700 South | Residence |
| C10 | South | 1679 West 1700 South | Residence |
| C11 | South | 1661 West 1700 South | Residence |
| C12 | South | 1637 West 1700 South | Residence |
| C13 | South | 1609 West 1700 South | Residence |
| C14 | South | 1597 West 1700 South | Residence/Business (Automatic Transmission Service) |
| C15 | South | 1557 West 1700 South | Residence |
| C16 | South | 1533 West 1700 South | Residence |
| C17 | South | 1729 South Allison Way | Residence |
| C18 | South | 1379 West 1700 South | Residence |
| C19 | South | 1327 West 1700 South | Residence |
| C20 | South | 1283 West 1700 South | Residence |
| C21 | South | 1261 West 1700 South | Residence |
| C22 | North | 1010 West 1700 South | Residence (multi-housing unit)* |

*multi-housing unit – would likely require relocation of tenants of four apartments located in the eastern building

### Indirect Impacts

Much of the land adjacent to Syracuse Road is undergoing change from agricultural and residential use to commercial use. This is expected to continue and would require that additional residences be relocated to make way for commercial development.

## 4.5.3 Alternative D

### Direct Impacts

Alternative D would require additional right-of-way for improvements to Syracuse Road. Construction of this alternative could relocate 41 residences, one residence/business, and two businesses along Syracuse Road.

Table 4-2 lists the 41 residences, one residence/business, and two businesses that may require relocation as a result of Alternative D. These properties are shown in Figure 4-2.

**Table 4-2. Alternative D Potential Relocations**

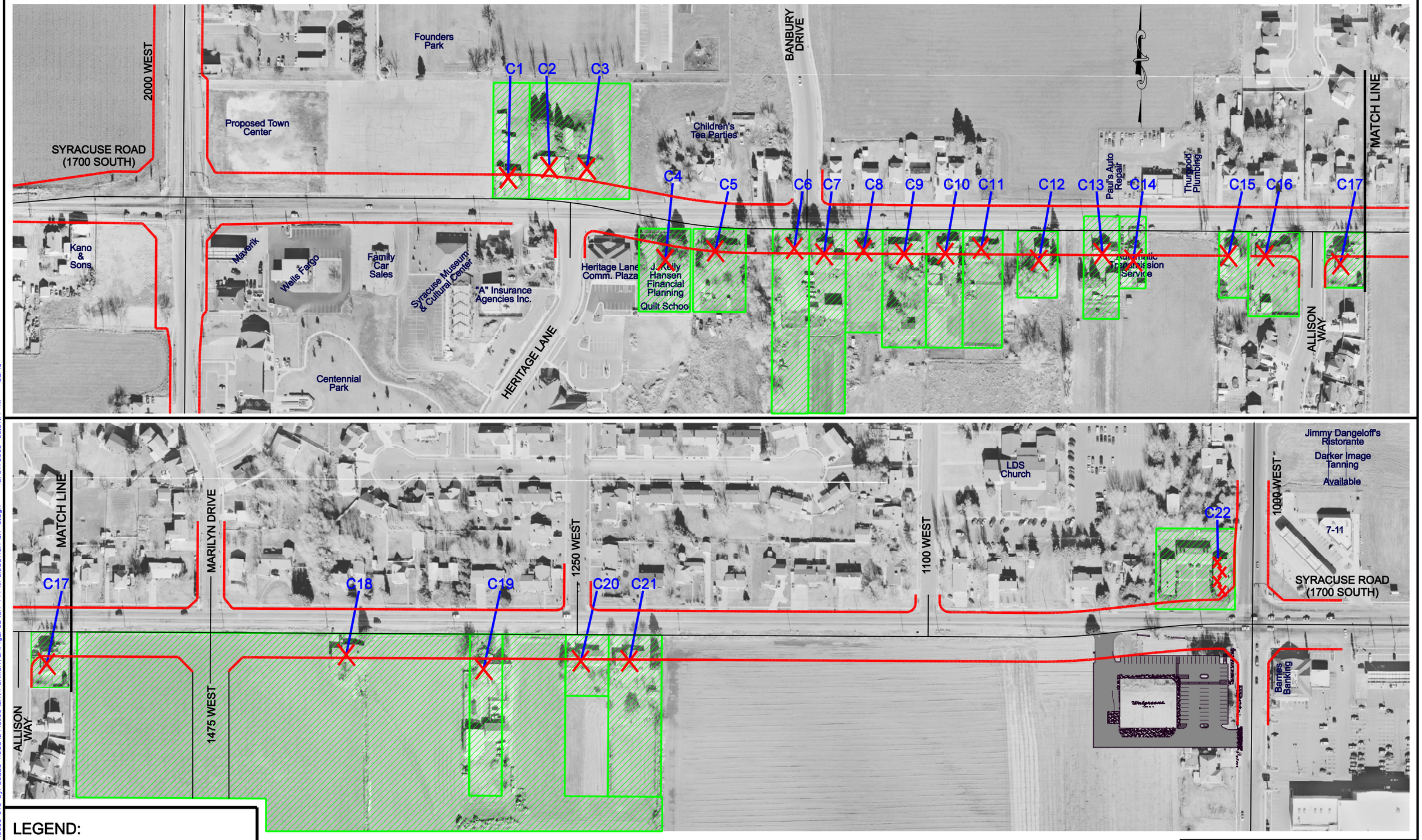
| Property # | North/ South Side | Address | Current Use |
|---|---|---|---|
| D1 | North | 1862 West 1700 South | Residence |
| D2 | North | 1828 West 1700 South | Residence |
| D3 | North | 1828 West 1700 South | Residence |
| D4 | North | 1792 West 1700 South | Residence |
| D5 | North | 1782 West 1700 South | Residence/Business (Children's Tea Parties) |
| D6 | North | 1752 West 1700 South | Residence |
| D7 | North | 1724 West 1700 South | Residence |

| Property # | North/ South Side | Address | Current Use |
|---|---|---|---|
| D8 | North | 1708 West 1700 South | Residence |
| D9 | North | 1698 West 1700 South | Residence |
| D10 | North | 1688 West 1700 South | Residence |
| D11 | North | 1674 West 1700 South | Residence |
| D12 | North | 1586 West 1700 South | Business (Paul's Auto Repair) |
| D13 | North | 1578 West 1700 South | Business (Thurgood Plumbing) |
| D14 | North | 1558 West 1700 South | Residence |
| D15 | North | 1546 West 1700 South | Residence |
| D16 | North | 1532 West 1700 South | Residence |
| D17 | North | 1518 West 1700 South | Residence |
| D18 | North | 1506 West 1700 South | Residence |
| D19 | North | 1492 West 1700 South | Residence |
| D20 | North | 1478 West 1700 South | Residence |
| D21 | North | 1452 West 1700 South | Residence |
| D22 | North | 1679 South Marilyn Drive | Residence |
| D23 | North | 1412 West 1700 South | Residence |
| D24 | North | 1384 West 1700 South | Residence |
| D25 | North | 1358 West 1700 South | Residence |
| D26 | North | 1342 West 1700 South | Residence |
| D27 | North | 1320 West 1700 South | Residence |
| D28 | North | 1264 West 1700 South | Residence |
| D29 | North | 1679 South 1250 West | Residence |
| D30 | North | 1224 West 1700 South | Residence |
| D31 | North | 1206 West 1700 South | Residence |
| D32 | North | 1190 West 1700 South | Residence |
| D33 | North | 1172 West 1700 South | Residence |
| D34 | North | 1154 West 1700 South | Residence |
| D35 | North | 1136 West 1700 South | Residence |
| D36 | North | 1676 South 1100 West | Residence |
| D37 | North | 1695 South 1100 West | Residence |
| D38 | North | 1102 West 1700 South | Residence |
| D39 | North | 1066 West 1700 South | Residence |
| D40 | North | 1048 West 1700 South | Residence |
| D41 | North | 1010 West 1700 South | Residence (multi-housing unit)* |

*multi-housing unit - would likely require relocation of tenants of four apartments

## Indirect Impacts

Much of the land adjacent to Syracuse Road is undergoing change from agricultural and residential use to commercial use. This is expected to continue and would require that additional residences be relocated to make way for commercial development.




LEGEND:

- POTENTIAL RELOCATION
- POTENTIAL RELOCATION PROPERTY BOUNDARY
- PROPOSED R/W LINE

100 0 50 100 200

FIGURE 4-1
ALTERNATIVE C
POTENTIAL RELOCATIONS

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FIGURE 4-2
ALTERNATIVE D
POTENTIAL RELOCATIONS

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### 4.5.4 Availability of Comparable Housing

Home values for residences along Syracuse Road between 1000 West and 2000 West range from the low $100,000s to the mid $200,000s. The average household income for residents along Syracuse Road (between 1000 West and 2000 West) is between $45,000 and $55,000 per year.

In January 2005, the Wasatch Front Regional Multiple Listing Service listed 1,492 homes for sale in Davis County, including 197 in Syracuse City. It is anticipated that homes for sale in the area could serve as replacement housing for impacted residents on Syracuse Road. Table 4-3 contains information relating to available homes for sale in Syracuse City.

**Table 4-3. Available Homes for Sale in Syracuse City, Zip Code 84075 (January 25, 2005).**

| Homes for Sale per Price Range | Minimum Bedrooms | | | | Minimum Acres | | |
|---|---|---|---|---|---|---|---|
| | No Minimum | 3 Bedroom | 4 Bedroom | 5 Bedroom | No Minimum | ½ Acre | 1 Acre |
| $0 to $100,000 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| $100,000 to $150,000 | 24 | 24 | 6 | 1 | 24 | 1 | 0 |
| $150,000 to $200,000 | 83 | 83 | 22 | 10 | 83 | 3 | 3 |
| $200,000 to $250,000 | 53 | 53 | 21 | 10 | 53 | 3 | 0 |
| $250,000 to $300,000 | 26 | 26 | 15 | 7 | 26 | 0 | 0 |
| $300,000 to $350,000 | 5 | 5 | 3 | 2 | 5 | 0 | 0 |

Source: www.utahrealestate.com (Wasatch Front Regional Multiple Listing Service)

At the present time, there are at least seven newly approved subdivisions in Syracuse City that will add a minimum of 843 new residential building lots. A search was also completed on the Wasatch Front Regional Multiple Listing Service to determine the available undeveloped land for sale within Syracuse City that could be developed to suit the buyer's needs. Table 4-4 shows the available undeveloped land for sale within Syracuse City per price range.

**Table 4-4. Available Land for Sale in Syracuse City, Zip Code 84075 (January 25, 2005).**

| Land for Sale per Price Range | Minimum Acres | | |
|---|---|---|---|
| | No Minimum | ½ Acre | 1 Acre |
| $0 - $50,000 | 1 | 0 | 0 |
| $50,000 - $100,000 | 14 | 1 | 0 |
| $100,000 - $300,000 | 0 | 0 | 0 |
| $300,000 or more | 7 | 0 | 7 |

Source: www.utahrealestate.com (Wasatch Front Regional Multiple Listing Service)

On December 16, 2004, the *Standard-Examiner* in Ogden (www.standard.net) was searched for available apartments for rent in Syracuse City. Five apartments were available for rent at that time.

### 4.5.5 Mitigation

Right-of-way acquisitions will occur in accordance with federal, state, and local relocation policies. The acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources will be available to each relocated residence without discrimination. UDOT will evaluate the need to provide early right-of-way acquisition for those property owners who demonstrate a hardship due to this project.

## 4.6 ECONOMIC CONDITIONS

### 4.6.1 No-action Alternative

Implementation of the No-action Alternative would have an effect on the local economic conditions. As discussed in Section 4.1.1, development activities along Syracuse Road between Allison Way and 1860 West may occur at a slower pace under the No-action Alternative than with a build alternative. Without improvements to Syracuse Road the type of development may be residential rather than commercial. If the Syracuse Road improvements are not constructed, it is anticipated that the value of the property along the corridor would increase less rapidly and the area may change to residential rather than commercial development, resulting in a loss of tax base for Syracuse City.

### 4.6.2 Alternative C and Alternative D

**Direct Impacts**

Businesses in the project area would experience temporary construction inconvenience but should gain positive long-term economic effects due to increased roadway capacity, decreased traffic congestion, improved accessibility, and increased exposure to potential consumers.

Alternative C would require relocation of the following businesses:

- J. Kelly Hansen Financial Planning/Quilt School (1797 West 1700 South)
- Automatic Transmission Service (1597 West 1700 South)

Alternative D would require relocation of the following businesses:

- Children's Tea Parties (1782 West 1700 South)
- Paul's Auto Repair (1586 West 1700 South)
- Thurgood Plumbing (1578 West 1700 South)

Raised medians with barrier-type curbing would be installed near the 1000 West and 2000 West intersections to reduce collisions resulting from left-turns within the dedicated left-turn lanes. The raised median would be placed in conjunction with the dedicated left-turn lanes at these intersections(all four dedicated left-turn lanes for the Syracuse Road – 2000 West intersection and the dedicated left-turn lanes on Syracuse Road for the Syracuse Road – 1000 West intersection), approximately 300 feet in length. Raised medians at major intersections on urban

arterials have been shown to reduce accidents. The raised medians would limit left turns near these intersections, and would have a minor affect on traffic patterns to access businesses located near these intersections.

**Indirect Impacts**

Alternatives C and D are expected to have a generally positive effect on the local and regional economy because of improved traffic flow and decreased travel times. Currently, the congestion is so heavy along Syracuse Road that some potential customers avoid traveling there during the peak traffic hours. The improved mobility would facilitate the development of the vacant commercial parcels within and surrounding the project area. New businesses would add to revenue in the local economy through sales and property taxes and would provide employment opportunities.

### 4.6.3 Mitigation

Access will be maintained to all businesses during construction. Where minor impacts to businesses (such as driveway reconstruction and parking lot reconfiguration) may occur, the property and business owners will be consulted during the design phase to develop solutions that will best suit the property while fulfilling the purpose and need of the project.

## 4.7 PEDESTRIANS AND BICYCLISTS

### 4.7.1 No-action Alternative

Currently, sidewalks exist only on the north side of Syracuse Road, and bicyclists must travel in the traffic lanes. It is expected that over time, additional sidewalks and trails throughout the project area may be constructed to improve pedestrian and bicycle uses. Students walking to school along Syracuse Road would continue to do so without sidewalks in some areas along the corridor.

The No-action Alternative would not comply with the Wasatch Front Regional Council (WFRC) bicycle plan, which calls for a Class II bicycle lane along Syracuse Road.

### 4.7.2 Alternative C and Alternative D

Both build alternatives provide for the construction of 6-ft sidewalks on both sides of Syracuse Road. The sidewalks would be constructed in compliance with the Americans with Disabilities Act of 1990 (ADA). A park strip between the sidewalk and the traveled way would provide a buffer to separate pedestrians from vehicular traffic. Crosswalks would be striped across Syracuse Road at all signalized intersections, and pedestrian signals would be provided. A school crossing would be maintained across Syracuse Road at Allison Way. The school crossing would be relocated to Marilyn Drive if a traffic signal is installed at this location. The school crossing would be coordinated with the Davis County School District.

A Class II bicycle lane would be provided under either of the build alternatives. This lane consists of a five-foot striped lane within the 12-foot shoulder. This lane complies with the WFRC bicycle plan.

The sidewalk and bicycle facilities would be coordinated with the Syracuse City Concept Master Trails Plan Map.

### 4.7.3 Commitments

A Class II bicycle route will be incorporated into the typical section of Syracuse Road; it provides a striped and signed lane on each side of a roadway for one-way bicycle travel. Continuous sidewalks will be provided on both sides of Syracuse Road. Crosswalks for Syracuse Road will be placed at all signalized intersections. A school crossing will be maintained across Syracuse Road at Allison Way. The school crossing will be relocated to Marilyn Drive if a traffic signal is installed at this location. The school crossing will be coordinated with the Davis County School District.

## 4.8 AIR QUALITY

### 4.8.1 No-action Alternative

Under the No-action Alternative, regional travel demands would not be accommodated, causing poor levels of service and vehicle delays to occur both on the subject corridor and extending to other corridors outside the project area. Outside the project corridor, traffic levels would increase and intersection levels of service would deteriorate. Within the project corridor, intersection delay would be excessive enough that drivers would seek alternative travel routes. The use of alternative routes could have a negative effect on the ability of the WFRC Long Range Transportation Plan (LRTP) to demonstrate regional conformity. Regional conformity must be determined by the WFRC at least every three years for the LRTP. A modified Regional analysis by the WFRC would be required prior to any new LRTP or Transportation Improvement Plan (TIP) approval if the No-action Alternative is chosen.

This project is located in Syracuse City which is not a non-attainment or maintenance area for Carbon Monoxide (CO). While there is no requirement for additional carbon monoxide hot spot analysis under transportation conformity rules, NEPA requirements still apply and additional analysis must be completed to verify the project's compliance with the National Ambient Air Quality Standards (NAAQS) one-hour and eight-hour CO standards. This verification comes from the analysis done with respect to traffic volume screening and a CAL3QHC analysis.

Based on exhaustive sensitivity testing done for UDOT for the Air Quality Hotspot Manual, it has been determined that for a two-lane facility, main line traffic volumes in the range of 30,000 vpd and intersection volumes in the range of 25,000 vpd do not cause CO levels to increase to the point of violating the NAAQS one-hour or eight-hour standards. The anticipated 2030 main line volumes for the No-Action Alternative are 22,000 vpd, so no violation of the standard is anticipated. For the No-action Alternative in year 2030, the 1000 West, 2000 West, and Marilyn Drive intersections are anticipated to exceed the 25,000 vpd, thus these intersections will be modeled using the CAL3QHC software. All other intersections in the project area have intersection traffic volumes that are less than the 25,000 vehicles per day.

Based on 2030 projected travel demand using a capacity restrained traffic assignment of a No-action Alternative (the model will not assign more traffic to Syracuse Road than can be handled by the existing roadway facility), hot spot analyses were performed using the CAL3QHC software. The air quality modeling assumptions of Alternatives C and D, referenced in the discussion below, also apply for the No-action Alternative analysis. The 1000 West – Syracuse Road, Marilyn Drive-Syracuse Road, and 2000 West – Syracuse Road intersections corresponding to the No-action Alternative were modeled (see Table 4-5). Based on this analysis, no intersection would exceed the one-hour (35 ppm) or eight-hour (9 ppm) CO standard in the design year (2030).

**Table 4-5. Year 2030 CAL3QHC Hot Spot Modeling Results for the No-action Alternative.**

| Location | One-Hour CO Concentration (in Parts Per Million) | Eight-Hour CO Concentration (in Parts Per Million) |
|---|---|---|
| 1000 West – Syracuse Road | 9.6 | 6.1 |
| Marilyn Drive – Syracuse Road | 8.8 | 5.6 |
| 2000 West – Syracuse Road | 9.3 | 5.9 |

## 4.8.2 Alternative C and Alternative D

The Syracuse Road project is included in and is consistent with the WFRC LRTP, which conforms to appropriate regional air quality thresholds. Therefore, Alternatives C and D meet the regional air quality conformity requirements.

### Carbon Monoxide Hotspots

This project is located in Syracuse City which is not a non-attainment or maintenance area for carbon monoxide. While there is no requirement for additional carbon monoxide hot spot analysis under transportation conformity rules, NEPA requirements still apply; and additional analysis must be completed to verify the project's compliance with the NAAQS one-hour and eight-hour CO standards. This verification comes from the analysis done with respect to traffic volume screening and a CAL3QHC analysis.

Based on exhaustive sensitivity testing done for the Utah Department of Transportation for the Air Quality Hotspot Manual, it has been determined that, for a four-lane facility, main line traffic volumes in the range of 50,000 vpd and intersection volumes in the range of 45,000 vpd do not cause carbon monoxide levels to increase to the point of violating the NAAQS one-hour or eight-hour standards. The anticipated 2030 main line volumes for the Alternative C and Alternative D are 30,000 vpd, so no violation of the standard is anticipated. For Alternative C and Alternative D in year 2030, the 1000 West intersection is anticipated to exceed the 45,000 vpd, thus this intersection will be modeled using the CAL3QHC software. All other intersections in the project area have intersection traffic volumes that are less than the 45,000 vpd screening threshold.

Use of the CAL3QHC software requires several assumptions. Background CO values were obtained from the Utah Division of Air Quality (UDAQ). Future background CO values are generally expected to decline; however, to be conservative, future background values were held

constant to existing values. Non-mobile source CO values were assumed constant. Idle and running emissions rates were obtained from the UDAQ. They were developed in conjunction with FHWA (Federal Highway Administration), WFRC, and the Mountainland Association of Governments (MAG) using the Mobile 6.2 software. Appropriate worst-case assumptions regarding meteorological persistence, wind speed, and stability class were also assumed and are documented in the CAL3QHC input file in the project files.

Eight-hour concentrations were derived directly from the one-hour concentration based on the following equation:

$CO_8 = PF*(CO_1 - BG_1) + BG_8$

where: $CO_8$ = Total 8-hour CO Concentration
PF = Persistency Factor
$CO_1$ = Total 1-hour CO Concentration
$BG_1$=1-hour Ambient Background CO Concentration
$BG_8$=8-hour Ambient Background CO Concentration

At the 1000 West intersection, Alternatives C and D are essentially identical in land configuration and projected traffic volumes; therefore, the air quality analysis is the same for both alternatives. Table 4-6 documents the results of the analysis for Alternatives C and D and concludes that they would not exceed the one-hour CO standard of 35 ppm or the eight-hour CO standard of 9 ppm. Alternatives C and D are not projected to cause new violations of the CO standard.

**Persistency Factor**
According to the *Manual for Air Quality Considerations in Environmental Documents* (published by the FHWA Utah Division and UDOT, October 24, 2001), the concept of a persistency factor (PF) has been used since the mid-1970s and accounts for the variability in both traffic and meteorological conditions. The PF can be calculated from monitored data; however, if insufficient data are available, the Environmental Protection Agency (EPA) recommends the use of a default PF of 0.7 to convert from a peak one-hour concentration to a peak eight-hour concentration. The 0.7 factor was used in the analysis and is considered reasonably conservative. The DAQ has verified that it is reasonably accurate for local conditions of CO episodes.

**Table 4-6. Year 2030 CAL3QHC Hot Spot Modeling Results for Alternatives C and D.**

| Location | One-Hour CO Concentration (in Parts Per Million) | Eight-Hour CO Concentration (in Parts Per Million) |
|---|---|---|
| 1000 West – Syracuse Road | 9.4 | 6.0 |

Tables 4-5 and 4-6 show similar CO levels on Syracuse Road for Alternatives C and D compared to the No-action Alternative. This demonstrates at this location that higher traffic volumes with less travel delay equate to about the same CO levels as the No-action Alternative with lower traffic volumes and greater travel delay. However, it is reasonable to assume that traffic diverted to other streets under the No-action Alternative would cause higher CO levels at those locations.

### PM10 Hotspots

This project is located in Syracuse City and so is not located in an EPA-designated non-attainment or maintenance area for $PM_{10}$ (particulate matter with a diameter of less than 10 micrometers) and there is no transportation conformity requirement for $PM_{10}$ hot spot analysis.

For NEPA evaluation, a qualitative analysis (an approved quantitative method for $PM_{10}$ hot spot analysis has not been developed) shows no $PM_{10}$ hot spot violations would occur with

Alternative C or Alternative D. Intersection timing, queue lengths, adjacent intersections, and many other factors may affect actual $PM_{10}$ hot spot concentrations and, just as the CO hot spot analysis indicates intersections generate less CO than the No-action Alternative, the build alternatives will improve the operation of the intersections. Most contributions to $PM_{10}$, however, include combustion of solid fuels such as wood and coal, gravel pits, agricultural activities such as fertilization and grain storage, construction activities, and dust from gravel and unpaved roadways. Therefore, based on comparative traffic analysis and a review of the surrounding land uses along Syracuse Road, hot spot $PM_{10}$ levels would not be a problem in the corridor. Dust abatement programs during construction would be monitored and would comply with applicable State standards in order to mitigate any temporary construction impacts of $PM_{10}$.

**Conclusion**

Alternatives C and D are not expected to cause new violations of the CO or $PM_{10}$ standards in the design year (2030). Ozone air quality concerns are regional in nature, and the project has been included in the WFRC 2030 LRTP, which conforms to the State Implementation Plan (SIP).

### 4.8.3 Mitigation

Mitigation during construction will include the use of dust-control measures per UDOT Standard Specification 1355 Environmental Protection. A permit for air quality impacts during construction will be obtained from UDAQ by the contractor to control fugitive dust and emissions. Other mitigation will include ongoing signal time maintenance performed by UDOT.

## 4.9 NOISE

The noise analysis was performed in accordance with 23 CFR 772 and the UDOT Noise Abatement Policy. Predicted 2030 noise levels were modeled for the No-action Alternative, Alternative C, and Alternative D.

The UDOT Noise Abatement Policy (revised March 8, 2004) establishes threshold values used to define noise impacts and where noise abatement will be considered. These values are shown in Table 4-7 (refer to Appendix B for full policy).

**Table 4-7. Noise Abatement Criteria.**

| Activity Category | Leq (h) | Address/Location |
|---|---|---|
| A | 55 (Exterior) | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose |
| B | 65 (Exterior) | Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries and hospitals |
| C | 70 (Exterior) | Developed lands, properties, or activities not included in Categories A or B above |
| D | -- | Undeveloped lands |
| E Interior | 50 (Interior) | Residences, motels, hotels, public meetings rooms, schools, churches, libraries, hospitals, and auditoriums |

Source: UDOT Noise Abatement Policy (revised March 8, 2004)

UDOT has defined a level of 65 dBA (A-weighted decibels) to be the threshold for the consideration of noise abatement for residences (Category B land use, refer to Table 4-7) and 70 dBA to be the threshold for the consideration of noise abatement for businesses (Category C land use, refer to Table 4-7). In addition, a receptor is considered impacted if the predicted noise level in the design year is 10 dBA or more above the current noise level.

The primary land use along the corridor is single-family residential. Retail and commercial developments are concentrated near 1000 West and 2000 West, and several businesses are located throughout the project limits. Undeveloped land is located along most of the south side of the corridor between 1000 West and Allison Way.

### 4.9.1 No-action Alternative

Under the No-action Alternative, traffic on local streets would continue to increase. Predicted No-action sound level contours can be seen in Figure 4-3. As shown in Table 4-8, 70 residences and the Syracuse Museum and Cultural Center would be impacted by a sound level of 65 dBA or higher, and four businesses would be impacted by a sound level of 70 dBA or higher (if a business is also a residence it is treated as a residence). The maximum increase in noise to impacted receivers would be 4.3 dBA and would occur at the residences located at 1828 West 1700 South and 1154 West 1700 South (see Figure 4-3).

**Table 4-8. Noise Impacts of the No-action Alternative**

| | Residences | Businesses | Churches/ Schools/Museums | Total |
|---|---|---|---|---|
| **Noise Impacts** | 70 | 4 | 1 | **75** |

### 4.9.2 Alternative C

Sound level contours for year 2030 for Alternative C are shown in Figure 4-4. As can be seen in Table 4-9, 24 residences and one business would be removed/relocated as part of Alternative C. The maximum increase in noise at a receptor that is not designated as a relocation would be 5.7 dBA and would occur at the home located at 1654 South 1000 West. Forty-eight of the

remaining residences and the Syracuse Museum and Cultural Center would be impacted by a sound level of 65 dBA or higher, and three of the remaining businesses would be impacted by a sound level of 70 dBA or higher (see Figure 4-4).

**Table 4-9. Noise Impacts of Alternative C (before mitigation)**

| | Residences | Businesses | Churches/ Schools/Museums | Total |
|---|---|---|---|---|
| **Noise Impacts** | 72 | 4 | 1 | 77 |
| **Potential Relocations** | 24 | 1 | 0 | 25 |
| **Net Impacted Receptors** (Impacts after subtracting relocations) | 48 | 3 | 1 | **52** |

## 4.9.3 Alternative D

Sound level contours for year 2030 for Alternative D are shown in Figure 4-5. As can be seen in Table 4-10, 42 residences and two businesses would be removed/relocated as part of Alternative D. The maximum increase in noise at a receptor that is not designated as a relocation would be 8.4 dBA and would occur at the home located at 1379 West 1625 South. Forty-four of the remaining residences and the Syracuse Museum and Cultural Center would be impacted by a sound level of 65 dBA or higher, and 1 of the remaining businesses would be impacted by a sound level of 70 dBA or higher (see Figure 4-5).

**Table 4-10. Noise Impacts of Alternative D (before mitigation).**

| | Residences | Businesses | Churches/ Schools/Museums | Total |
|---|---|---|---|---|
| **Noise Impacts** | 86 | 3 | 1 | 90 |
| **Potential Relocations** | 42 | 2 | 0 | 44 |
| **Net Impacted Receptors** (Impacts after subtracting relocations) | 44 | 1 | 1 | **46** |

## 4.9.4 Summary of Noise Levels

Table 4-11 shows a summary of the existing noise, predicted No-action Alternative, Alternative C, and Alternative D noise levels for each receiver along Syracuse Road.

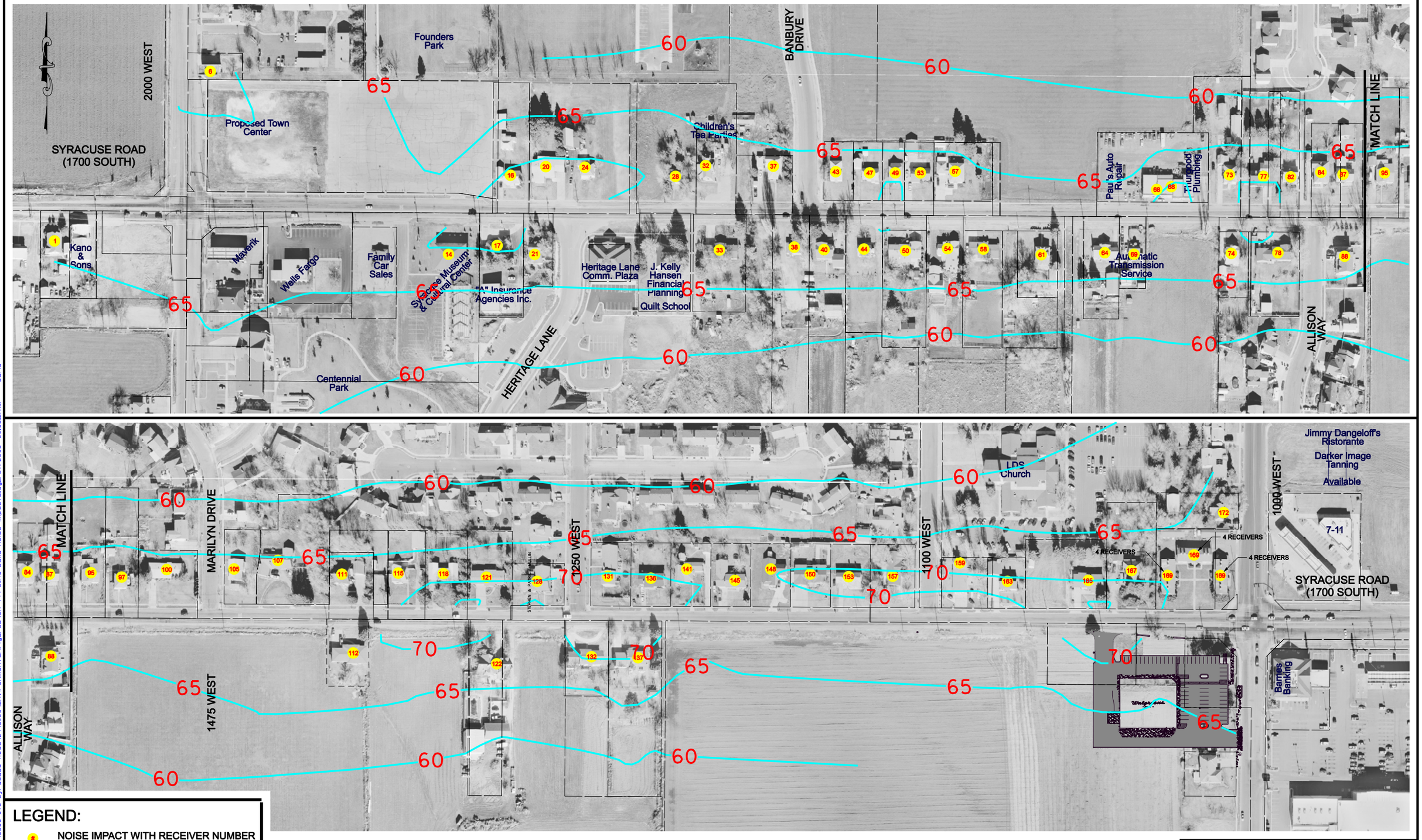
**Table 4-11. Summary of Existing and Predicted Noise Levels.**

| Receiver No. | Address | Existing Noise Levels (dBA) | No-action Noise Levels (dBA) | Alternative C Noise Levels without Mitigation (dBA) | Alternative D Noise Levels without Mitigation (dBA) |
|---|---|---|---|---|---|
| 1 | 2057 W. 1700 S. | 64.2 | 66.5 | 66.0 | 66.3 |
| 2 | 2057 W. 1700 S. (Kano & Sons) | 64.9 | 67.1 | 67.5 | 67.2 |
| 5 | 1792 S. 2000 W. | 60.8 | 62.8 | 66.2 | 66.2 |

| Receiver No. | Address | Existing Noise Levels (dBA) | No-action Noise Levels (dBA) | Alternative C Noise Levels without Mitigation (dBA) | Alternative D Noise Levels without Mitigation (dBA) |
|---|---|---|---|---|---|
| 6 | 1655 S. 2000 W. (Adventure Land Video – closed) | 68.8 | 70.9 | 69.7 | 69.7 |
| 7 | 1979 W. 1700 S. (Maverick) | 64.2 | 66.4 | 66.0 | 65.9 |
| 10 | 1975 W. 1700 S. (Wells Fargo) | 63.5 | 66.7 | 66.8 | 66.8 |
| 12 | 1947 W. 1700 S. (Family Car Sales) | 64.4 | 67.9 | 67.3 | 67.2 |
| 14 | 1875 W. 1700 S. (Museum) | 64.8 | 68.6 | 68.2 | 68.3 |
| 16 | 1862 W. 1700 S. | 66.8 | 70.8 | 75.0 (Relocation) | 75.1 (Relocation) |
| 17 | 1867 W. 1700 S. ("A" Insurance Agencies Inc.) | 67.1 | 70.8 | 69.8 | 69.9 |
| 20 | 1828 W. 1700 S. | 66.7 | 71.0 | 72.5 (Relocation) | 73.0 (Relocation) |
| 21 | 1851 W. 1700 S. | 66.1 | 69.5 | 68.7 | 68.6 |
| 24 | 1828 W. 1700 S. | 66.6 | 70.9 | 71.4 (Relocation) | 72.5 (Relocation) |
| 25 | 1747 W. 1700 S. (Heritage Lane Commercial Plaza) | 65.4 | 68.8 | 69.5 | 67.8 |
| 28 | 1792 W. 1700 S. | 66.0 | 69.8 | 71.0 | 75.0 (Relocation) |
| 29 | 1797 W. 1700 S. (J. Kelly Hansen Financial Planning/Quilt School) | 65.6 | 69.1 | 72.7 (Relocation) | 69.1 |
| 32 | 1782 W. 1700 S. | 64.0 | 67.9 | 65.6 | 71.4 (Relocation) |
| 33 | 1765 W. 1700 S. | 65.7 | 69.4 | 76.7 (Relocation) | 69.4 |
| 37 | 1752 W. 1700 S. | 63.4 | 67.0 | 67.0 | 71.7 (Relocation) |
| 38 | 1729 W. 1700 S. | 66.1 | 69.9 | 78.8 (Relocation) | 69.9 |
| 40 | 1729 W. 1700 S. | 65.6 | 69.4 | 77.8 (Relocation) | 68.9 |
| 43 | 1724 W. 1700 S. | 64.2 | 67.9 | 67.0 | 72.8 (Relocation) |
| 44 | 1711 W. 1700 S. | 65.7 | 69.5 | 78.1 (Relocation) | 69.7 |
| 47 | 1708 W. 1700 S. | 64.4 | 68.0 | 67.4 | 73.0 (Relocation) |
| 49 | 1698 W. 1700 S. | 64.4 | 68.0 | 68.0 | 72.9 (Relocation) |
| 50 | 1687 W. 1700 S. | 65.4 | 69.2 | 77.8 (Relocation) | 69.4 |
| 53 | 1688 W. 1700 S. | 64.4 | 68.0 | 68.4 | 73.0 (Relocation) |
| 54 | 1679 W. 1700 S. | 65.8 | 69.7 | 78.9 (Relocation) | 69.5 |
| 57 | 1674 W. 1700 S. | 64.0 | 67.6 | 68.1 | 72.5 (Relocation) |
| 58 | 1661 W. 1700 S. | 65.8 | 69.6 | 78.6 (Relocation) | 69.4 |
| 61 | 1637 W. 1700 S. | 64.8 | 68.6 | 75.8 (Relocation) | 69.0 |
| 64 | 1609 W. 1700 S. | 65.2 | 69.1 | 77.3 (Relocation) | 69.1 |

| Receiver No. | Address | Existing Noise Levels (dBA) | No-action Noise Levels (dBA) | Alternative C Noise Levels without Mitigation (dBA) | Alternative D Noise Levels without Mitigation (dBA) |
|---|---|---|---|---|---|
| 68 | 1586 W. 1700 S. (Paul's Auto Repair) | 67.2 | 70.7 | 69.7 | 78.1 (Relocation) |
| 68 | 1578 W. 1700 S. (Thurgood Plumbing) | 67.2 | 70.7 | 69.7 | 78.1 (Relocation) |
| 69 | 1597 W. 1700 S. | 64.9 | 68.8 | 76.5 (Relocation) | 68.8 |
| 73 | 1588 W. 1700 S. | 64.4 | 68.0 | 68.2 | 73.6 (Relocation) |
| 74 | 1557 W. 1700 S. | 65 | 68.9 | 77.3 (Relocation) | 69.1 |
| 77 | 1546 W. 1700 S. | 64.8 | 68.3 | 67.2 | 74.1 (Relocation) |
| 78 | 1533 W. 1700 S. | 65.2 | 69.0 | 77.8 (Relocation) | 69.1 |
| 82 | 1532 W. 1700 S. | 64.8 | 68.4 | 67.6 | 74.1 (Relocation) |
| 84 | 1518 W. 1700 S. | 64.0 | 67.5 | 66.9 | 72.2 (Relocation) |
| 87 | 1506 W. 1700 S. | 64.3 | 67.9 | 66.9 | 72.6 (Relocation) |
| 88 | 1729 S. Allison Way | 64.5 | 68.4 | 76.0 (Relocation) | 68.6 |
| 95 | 1492 W. 1700 S. | 64.0 | 67.6 | 66.7 | 72.3 (Relocation) |
| 97 | 1478 W. 1700 S. | 64.9 | 68.4 | 66.8 | 73.7 (Relocation) |
| 98 | 1656 S. Marilyn Drive | 58.9 | 62.6 | 62.7 | 66.7 |
| 100 | 1452 W. 1700 S. | 63.4 | 67.0 | 66.9 | 72.2 (Relocation) |
| 103 | 1659 S. Marilyn Drive | 57.2 | 60.9 | 61.7 | 65.5 |
| 105 | 1679 S. Marilyn Drive | 63.1 | 66.7 | 66.3 | 72.3 (Relocation) |
| 106 | 1389 W. 1625 S. | 55.7 | 59.4 | 60.6 | 65.2 |
| 107 | 1412 W. 1700 S. | 61.7 | 65.3 | 65.2 | 70.5 (Relocation) |
| 109 | 1379 W. 1625 S. | 57.4 | 61.2 | 61.8 | 65.8 |
| 111 | 1384 W. 1700 S. | 63.8 | 67.3 | 65.8 | 73.4 (Relocation) |
| 112 | 1379 W. 1700 S. | 65.8 | 69.6 | 78.3 (Relocation) | 69.4 |
| 113 | 1353 W. 1625 S. | 57.4 | 61.2 | 62.4 | 65.1 |
| 115 | 1358 W. 1700 S. | 63.6 | 67.1 | 65.7 | 73.4 (Relocation) |
| 118 | 1342 W. 1700 S. | 63.9 | 67.6 | 66.6 | 73.2 (Relocation) |
| 121 | 1320 W. 1700 S. | 65.1 | 68.9 | 67.8 | 74.1 (Relocation) |
| 122 | 1327 W. 1700 S. | 64 | 67.7 | 74.4 (Relocation) | 67.1 |
| 126 | 1668 S. 1250 W. | 60.1 | 64.0 | 64.7 | 66.5 |
| 128 | 1264 W. 1700 S. | 66.2 | 70.1 | 69.0 | 75.0 (Relocation) |
| 129 | 1657 S. 1250 W. | 57.3 | 61.1 | 63.2 | 65.3 |
| 131 | 1679 S. 1250 W. | 66.3 | 70.4 | 68.4 | 72.5 (Relocation) |
| 132 | 1283 W. 1700 S. | 67.1 | 70.4 | 77.0 (Relocation) | 68.2 |
| 134 | 1217 W. 1625 S. | 56.6 | 60.4 | 62.8 | 65.0 |

| Receiver No. | Address | Existing Noise Levels (dBA) | No-action Noise Levels (dBA) | Alternative C Noise Levels without Mitigation (dBA) | Alternative D Noise Levels without Mitigation (dBA) |
|---|---|---|---|---|---|
| 136 | 1224 W. 1700 S. | 66.3 | 70.4 | 68.4 | 73.1 (Relocation) |
| 137 | 1261 W. 1700 S. | 67.0 | 70.2 | 76.7 (Relocation) | 68.6 |
| 139 | 1203 W. 1625 S. | 56.7 | 60.5 | 62.4 | 64.9 |
| 141 | 1206 W. 1700 S. | 64.7 | 68.8 | 66.8 | 70.1 (Relocation) |
| 143 | 1187 W. 1625 S. | 56.8 | 60.6 | 62.1 | 65.1 |
| 145 | 1190 W. 1700 S. | 65.5 | 69.1 | 67.2 | 73.4 (Relocation) |
| 146 | 1171 W. 1625 S. | 57.3 | 61.1 | 61.7 | 65.2 |
| 148 | 1172 W. 1700 S. | 65.5 | 69.7 | 65.8 | 70.5 (Relocation) |
| 150 | 1154 W. 1700 S. | 66.5 | 70.8 | 66.2 | 72.5 (Relocation) |
| 151 | 1155 W. 1625 S. | 56.9 | 60.7 | 61.5 | 65.1 |
| 153 | 1136 W. 1700 S. | 67.0 | 71.2 | 66.4 | 73.4 (Relocation) |
| 154 | 1638 S. 1100 W. | 56.1 | 59.7 | 60.8 | 64.4 |
| 155 | 1654 S. 1100 W. | 59.1 | 62.9 | 62.1 | 67.2 |
| 157 | 1676 S. 1100 W. | 66.6 | 70.8 | 65.9 | 72.9 (Relocation) |
| 159 | 1695 S. 1100 W. | 64.5 | 68.7 | 64.5 | 70.1 (Relocation) |
| 163 | 1102 W. 1700 S. | 66.7 | 70.5 | 67.6 | 74.9 (Relocation) |
| 165 | 1066 W. 1700 S. | 66.2 | 69.9 | 68.4 | 73.3 (Relocation) |
| 167 | 1048 W. 1700 S. | 64.3 | 67.8 | 67.1 | 70.3 (Relocation) |
| 169 | 1010 W. 1700 S. (12 apartments) | 66.1 | 69.0 | 70.0 (Relocation of 4 apartments) | 71.1 (Relocation of 4 apartments) |
| 171 | 1622 S. 1000 W. | 61.6 | 64.5 | 67.1 | 67.5 |
| 172 | 1654 S. 1000 W. | 64.9 | 67.7 | 70.6 | 70.7 |
| 174 | Walgreens | 61.6 | 64.1 | 65.0 | 63.9 |
| 176 | Barnes Banking | 65.9 | 67.9 | 69.5 | 69.3 |




LEGEND:

- # NOISE IMPACT WITH RECEIVER NUMBER (≥65 dBA FOR RESIDENCES; ≥ 70 dBA FOR BUSINESSES)
- EXISTING RIGHT-OF-WAY
- 60 NOISE LEVEL CONTOURS

100 0 50 100 200

FIGURE 4-3
NO ACTION
NOISE IMPACTS (2030)

DGN TAG: G:\U2003\0306-073 Syracuse Road\2445.06\Environment\Figures\Ch-4\4-3_no-build noise impacts.dgn 9/27/2005 09:03:21 AM carla

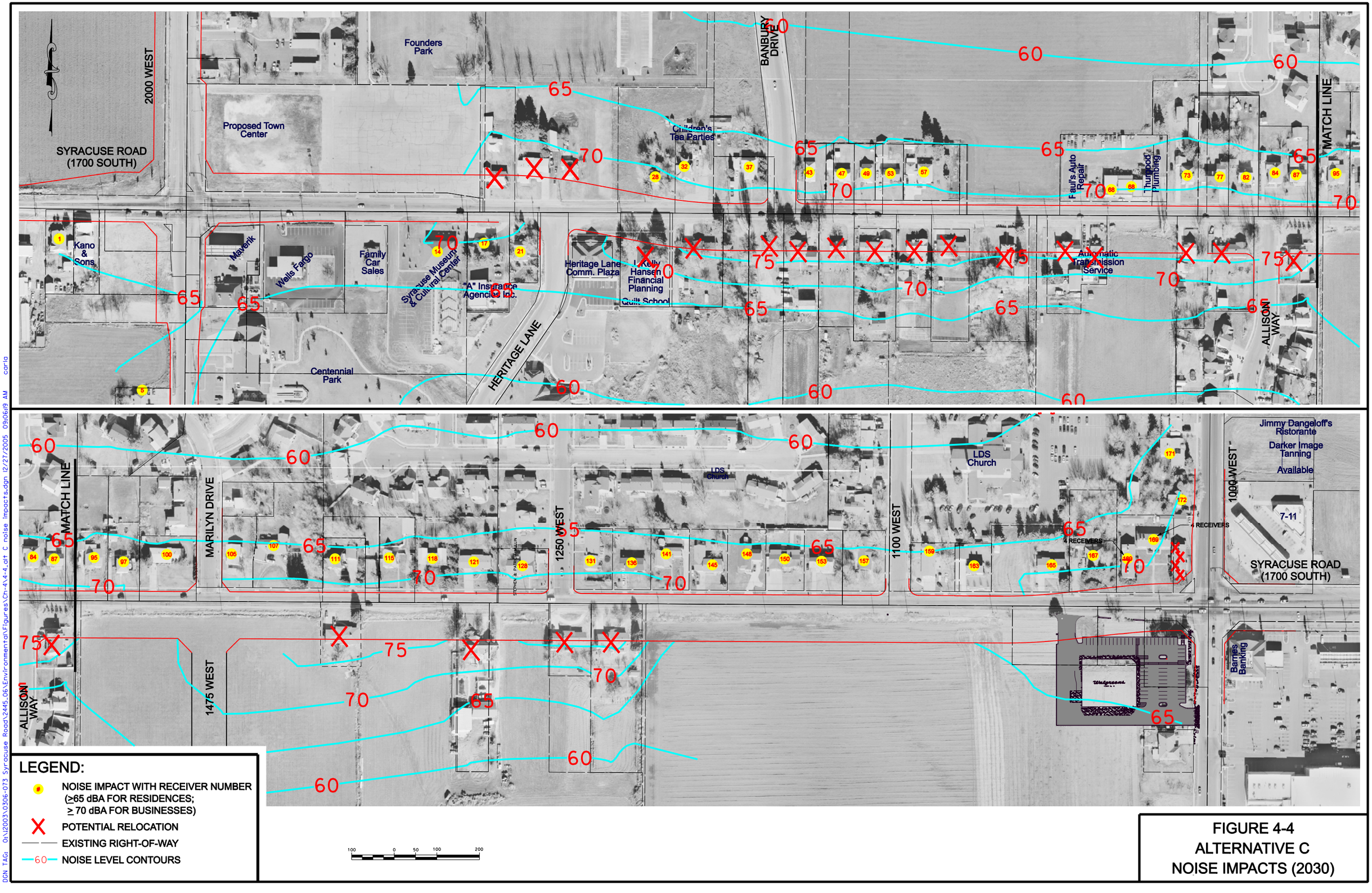



FIGURE 4-4
ALTERNATIVE C
NOISE IMPACTS (2030)

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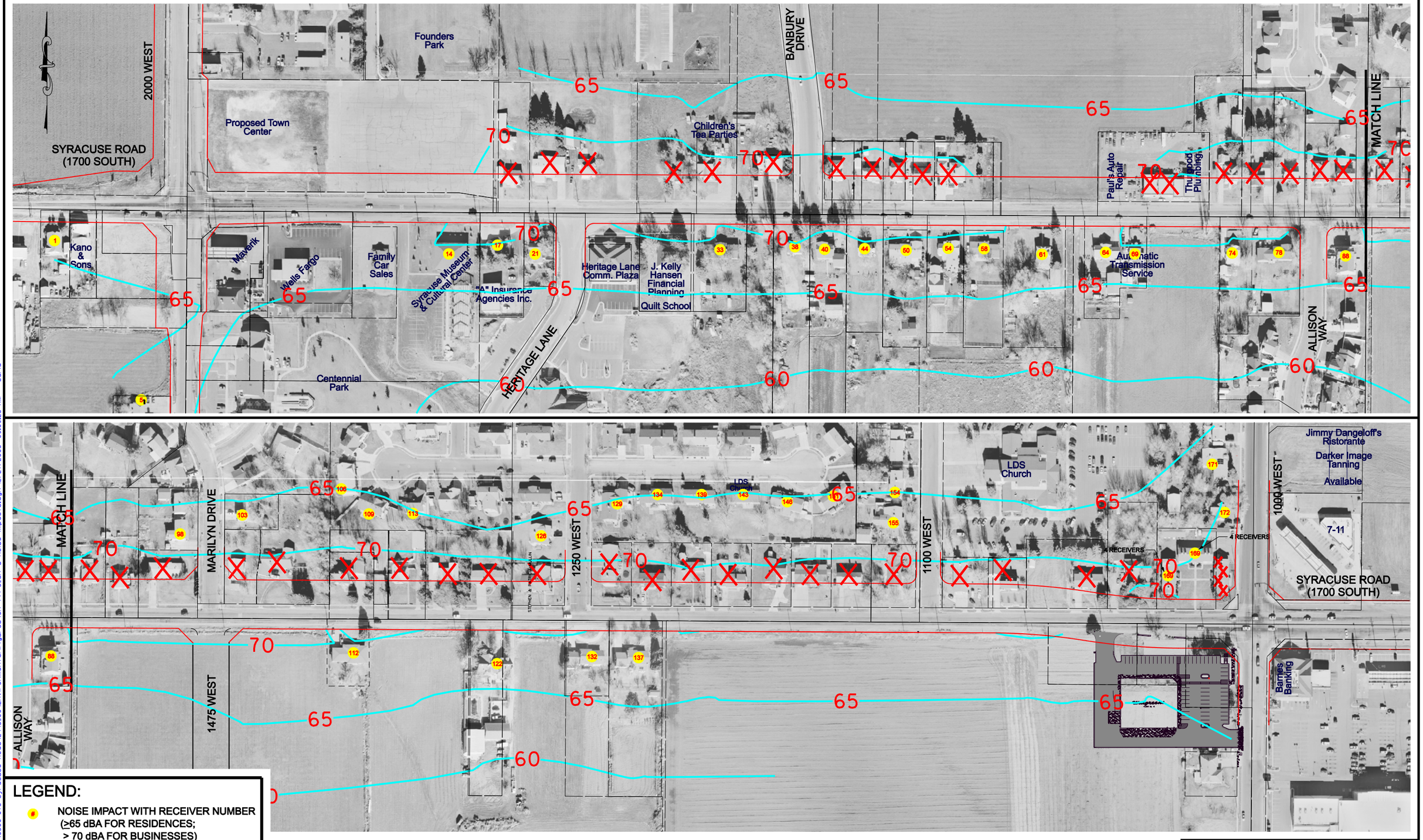



LEGEND:

- # NOISE IMPACT WITH RECEIVER NUMBER (≥65 dBA FOR RESIDENCES; ≥ 70 dBA FOR BUSINESSES)
- X POTENTIAL RELOCATION
- EXISTING RIGHT-OF-WAY
- 60 NOISE LEVEL CONTOURS

100 0 50 100 200

FIGURE 4-5
ALTERNATIVE D
NOISE IMPACTS (2030)

DGN TAG: G:\I2003\0306-073 Syracuse Road\2445.06\Environment\Figures\Ch-4\4-5.alt D noise impacts.dgn 12/27/2005 09:09:25 AM carla

## 4.9.5 Noise Abatement Analysis

According to federal and state policies, specific conditions must be met before traffic noise abatement is implemented as part of the proposed project. Also, noise mitigation must be considered reasonable and feasible. Reasonable and feasible conditions are met when the noise levels are decreased by a minimum of 5 dBA and the noise abatement measure is economically feasible and benefits the majority of front-row receivers. If either of these two conditions is not satisfied, then the noise abatement measure is not considered reasonable. The types of noise mitigation measures considered for Alternatives C and D include:

### Traffic Management Measures

This mitigation measure includes reducing the speed limit along the proposed roadway or signing for the restriction of compression brakes. According to the *Highway Traffic Noise Analysis and Abatement Policy and Guidance* report produced by the FHWA, a reduction in speed of more than 20 mph would be necessary for a noticeable decrease in noise levels. Syracuse Road is classified as an arterial and will have a design speed of 45 mph. A speed limit of 25 mph is needed to assure a noticeable decrease in noise levels, which is inconsistent with the roadway classification. This measure is not a viable abatement measure for this project. Syracuse Road will be signed for the restriction of compression brakes.

### Horizontal and/or Vertical Alignment Shifts

As discussed in Chapter 2, alignment concepts were evaluated for Alternatives C and D. Alternatives C and D were studied and selected because these alignments meet the project purpose and need as outlined in Chapter 1 and minimize environmental impacts, including cultural resources, noise, and residential relocations.

#### *Alternative C*

Alternative C would need to shift south approximately 150 feet to prevent noise impacts on receivers located on the north side of Syracuse Road. This alignment shift is not reasonable due to the cost associated with the large amount of additional right-of-way that would be required.

#### *Alternative D*

Alternative D would need to shift north approximately 150 feet to prevent noise impacts on receivers located on the south side of Syracuse Road. This alignment shift would just move traffic closer and increase the noise levels at these receptors.

### Construction of Berms and Associated Landscaping

Construction of earth berms can be an effective noise abatement measure. Berms would need to be eight to twelve feet high to be effective, which would require a minimum additional right-of-way width of 48 to 72 feet.

Vegetation must be extremely dense and at least 100 feet thick, according to FHWA's June 1995 *Highway Traffic Noise Analysis and Abatement Policy and Guidance*, in order to achieve noticeable noise reduction by itself.

The construction of berms and/or landscaping to achieve noise mitigation is not reasonable along the corridor. A large amount of additional right-of-way would be required, substantially increasing the cost, and openings for driveway connections would render berms and/or landscaping ineffective.

**Noise Barrier Abatement Options**

For a sound wall to be effective, it must be high enough and long enough to block the view of the road from the receptor's perspective. The *Highway Traffic Noise Analysis and Abatement Policy and Guidance* states that a good rule of thumb is that the noise barrier should extend four times as far in each direction as the distance from the receiver to the barrier. For instance, if the receiver is 50 feet from the proposed sound wall, the wall needs to extend at least 200 feet on either side of the receiver in order to shield the receiver from noise traveling past the ends of the wall.

The UDOT Noise Abatement Policy requires that sound walls achieve at least a 5 dBA reduction at the majority of front-row (adjacent) receivers.

Openings in sound walls for driveway connections or intersecting streets destroy the effectiveness of barriers. Therefore, homes with direct access onto Syracuse Road do not qualify for sound walls.

The UDOT Noise Abatement Policy further states that "the maximum cost used to determine reasonableness to provide noise abatement will be $25,000 per benefited receiver." Benefited receivers are any impacted or non-impacted receiver that gets a noise reduction of 5 dBA or more as a result of the noise barrier.

***Alternative C Noise Wall Analysis***

As shown in Figure 4-4, 52 receivers not designated as potential relocations would be impacted by Alternative C. Each impacted receiver is listed in Table 4-12, along with the feasible and reasonable noise mitigation options available. Noise barrier mitigation has been considered, as shown in Figure 4-6. More detailed information on each noise wall can be found in the Noise Technical Report (see List of Technical Reports in Table of Contents).

**Table 4-12. Sensitive Receivers Impacted by Noise and Available Mitigation for Alternative C**

| Receiver No. | Address | Existing Noise (dBA) | Alternative C Noise without Mitigation (dBA) | Mitigation |
|---|---|---|---|---|
| 1 | 2057 W. 1700 S. | 64.2 | 66.0 | None [1] |
| 5 | 1792 S. 2000 W. | 60.8 | 66.2 | None [1] |
| 14 | 1875 W. 1700 S. (Museum) | 64.8 | 68.2 | None [1] |
| 17 | 1867 W. 1700 S. ("A" Insurance Agencies Inc.) | 67.1 | 69.8* | None [1] |
| 21 | 1851 W. 1700 S. | 66.1 | 68.7 | None [1] |
| 28 | 1792 W. 1700 S. | 66 | 71.0 | None [1] |

| Receiver No. | Address | Existing Noise (dBA) | Alternative C Noise without Mitigation (dBA) | Mitigation |
|---|---|---|---|---|
| 32 | 1782 W. 1700 S. (Children's Tea Parties/Residence) | 64 | 68.3 | None [1] |
| 37 | 1752 W. 1700 S. | 63.4 | 67.0 | None [1] |
| 43 | NO ADDRESS | 64.2 | 67.0 | None [1] |
| 47 | 1708 W. 1700 S. | 64.4 | 67.4 | None [1] |
| 49 | 1698 W. 1700 S. | 64.4 | 68.0 | None [1] |
| 53 | 1688 W. 1700 S. | 64.4 | 68.4 | None [1] |
| 57 | 1674 W. 1700 S. | 64 | 68.1 | None [1] |
| 68 | 1586 W. 1700 S. (Paul's Auto Repair) | 67.2 | 69.7* | None [1] |
| 68 | 1578 W. 1700 S. (Thurgood Plumbing) | 67.2 | 69.7* | None [1] |
| 73 | 1558 W. 1700 S. | 64.4 | 68.2 | None [1] |
| 77 | 1546 W. 1700 S. | 64.8 | 67.7 | None [1] |
| 82 | 1532 W. 1700 S. | 64.8 | 67.6 | None [1] |
| 84 | 1518 W. 1700 S. | 64 | 66.9 | None [1] |
| 87 | 1506 W. 1700 S. | 64.3 | 66.9 | None [1] |
| 95 | 1492 W. 1700 S. | 64 | 66.7 | None [1] |
| 97 | 1478 W. 1700 S. | 64.9 | 66.8 | None [1] |
| 100 | 1452 W. 1700 S. | 63.4 | 66.9 | None [1] |
| 105 | 1679 S. Marilyn Drive | 63.1 | 66.3 | None [2] |
| 107 | 1412 W. 1700 S. | 61.7 | 65.2 | None [1] |
| 111 | 1384 W. 1700 S. | 63.8 | 65.8 | None [1] |
| 115 | 1358 W. 1700 S. | 63.6 | 65.7 | None [1] |
| 118 | 1342 W. 1700 S. | 63.9 | 66.6 | None [1] |
| 121 | 1320 W. 1700 S. | 65.1 | 67.8 | None [1] |
| 128 | 1264 W. 1700 S. | 66.2 | 69.0 | None [2] |
| 131 | 1679 S. 1250 W. | 66.3 | 68.7 | None [2] |
| 136 | 1224 W. 1700 S. | 66.3 | 68.4 | None [1] |
| 141 | 1206 W. 1700 S. | 64.7 | 66.8 | None [1] |
| 145 | 1190 W. 1700 S. | 65.5 | 67.2 | None [1] |
| 148 | 1172 W. 1700 S. | 65.5 | 65.8 | None [1] |
| 150 | 1154 W. 1700 S. | 66.5 | 66.2 | None [1] |
| 153 | 1136 W. 1700 S. | 67 | 66.4 | None [1] |
| 157 | 1676 S. 1100 W. | 66.6 | 65.9 | None [2] |
| 159 | 1695 S. 1100 W. | 64.5 | 64.5 | None [1] |

| Receiver No. | Address | Existing Noise (dBA) | Alternative C Noise without Mitigation (dBA) | Mitigation |
|---|---|---|---|---|
| 163 | 1102 W. 1700 S. | 66.7 | 67.6 | None [1] |
| 165 | 1066 W. 1700 S. | 66.2 | 68.4 | None [1] |
| 167 | 1048 W. 1700 S. | 64.3 | 67.4 | None [1] |
| 169 | 1010 W. 1700 S. (8 apartments) | 66.1 | 70.0 | **Noise Wall 5:** 6-ft to 16-ft wall provides at least a 5 dBA reduction to 8 receivers |
| 171 | 1622 S. 1000 W. | 61.6 | 67.1 | None [1] |
| 172 | 1654 S. 1000 W. | 64.9 | 70.6 | None [1] |

* The noise level was determined to be close enough to the threshold of 70 dBA for the consideration of noise abatement for businesses and would be considered an impact
1 Noise wall ineffective because of driveway access
2 Noise wall cannot achieve 5 dBA reduction

Noise Walls 1 through 4 are not discussed because they do not meet the UDOT Noise Abatement policy.

Noise Wall 5 (Receiver 169)

As seen in Table 4-13, a wall ranging from 6-ft to 16-ft in height would be effective for noise mitigation, would be within the cost limit, and would provide a 5 dBA reduction for the majority of the eight front row-receivers.

**Table 4-13. Results of Noise Wall 5 Analysis.**

| Wall Height (ft) | Wall Length (ft) | Total Cost of Noise Wall | Number of benefited receivers* | Cost per benefited receiver | Average Noise reduction in area (dBA) | 5 dBA Reduction for Majority of Front Row Receivers |
|---|---|---|---|---|---|---|
| 6 | 207 | $13,000 | 8 | $1,625 | 5.1 | Yes |
| 8 | 207 | $17,300 | 8 | $2,163 | 6.3 | Yes |
| 10 | 207 | $21,700 | 8 | $2,713 | 7.0 | Yes |
| 12 | 207 | $26,000 | 8 | $3,250 | 7.6 | Yes |
| 14 | 207 | $30,400 | 8 | $3,800 | 8.0 | Yes |
| 16 | 207 | $34,700 | 8 | $4,338 | 8.3 | Yes |

*A benefited receiver is any impacted or non-impacted receiver that gets a noise reduction of 5 dBA or more as a result of the noise barrier.
Highlighted rows in blue indicate wall heights that meet requirements of the UDOT Noise Abatement Policy.

The eight apartments remaining at 1010 West 1700 South would be benefited by a 6-ft to 16-ft noise wall. A noise wall is recommended at this location.

### *Alternative D Noise Wall Analysis*

As shown in Figure 4-5, 46 receivers not designated as potential relocations would be impacted by Alternative D. Each impacted receiver is listed in Table 4-14, along with the feasible and reasonable noise mitigation options available. Noise barrier mitigation has been considered, as

shown in Figure 4-7. More detailed information on each noise wall can be found in the Noise Technical Report (see List of Technical Reports in the Table of Contents).

**Table 4-14. Sensitive Receivers Impacted by Noise and Available Mitigation for Alternative D.**

| Receiver No. | Address | Existing Noise (dBA) | Alternative D Noise without Mitigation (dBA) | Mitigation |
|---|---|---|---|---|
| 1 | 2057 W. 1700 S. | 64.2 | 66.3 | None [1] |
| 5 | 1792 S. 2000 W. | 60.8 | 66.2 | None [1] |
| 14 | 1875 W. 1700 S. (Museum) | 64.8 | 68.3 | None [1] |
| 17 | 1867 W. 1700 S. ("A" Insurance Agencies Inc.) | 67.1 | 69.9* | None [1] |
| 21 | 1851 W. 1700 S. | 66.1 | 68.6 | None [1] |
| 33 | 1765 W. 1700 S. | 65.7 | 69.4 | None [1] |
| 38 | 1729 W. 1700 S. | 66.1 | 69.9 | None [1] |
| 40 | 1729 W. 1700 S. | 65.6 | 68.9 | None [1] |
| 44 | 1711 W. 1700 S. | 65.7 | 69.7 | None [1] |
| 50 | 1687 W. 1700 S. | 65.4 | 69.4 | None [1] |
| 54 | 1679 W. 1700 S. | 65.8 | 69.5 | None [1] |
| 58 | 1661 W. 1700 S. | 65.8 | 69.4 | None [1] |
| 61 | 1637 W. 1700 S. | 64.8 | 69.0 | None [1] |
| 64 | 1609 W. 1700 S. | 65.2 | 69.1 | None [1] |
| 69 | 1597 W. 1700 S. | 64.9 | 68.8 | None [1] |
| 74 | 1557 W. 1700 S. | 65 | 69.1 | None [1] |
| 78 | 1533 W. 1700 S. | 65.2 | 69.1 | None [1] |
| 88 | 1729 S. Allison Way | 64.5 | 68.6 | None [2] |
| 98 | 1656 S. Marilyn Drive | 58.9 | 66.7 | **Noise Wall 2:** 12-ft wall provides 5.2 dBA reduction |
| 103 | 1659 S. Marilyn Drive | 57.2 | 65.5 | **Noise Wall 3:** 12-ft to 16-ft wall provides at least a 5 dBA reduction |
| 106 | 1389 W. 1625 S. | 55.7 | 65.2 | **Noise Wall 3:** 8-ft to 16-ft wall provides at least a 5 dBA reduction |
| 109 | 1379 W. 1625 S. | 57.4 | 65.8 | **Noise Wall 3:** 8-ft to 16-ft wall provides at least a 5 dBA reduction |
| 112 | 1379 W. 1700 S. | 65.8 | 69.4 | None [1] |
| 113 | 1353 W. 1625 S. | 57.4 | 65.1 | **Noise Wall 3:** 8-ft to 16-ft wall provides at least a 5 dBA reduction |
| 122 | 1327 W. 1700 S. | 64 | 67.1 | None [1] |
| 126 | 1668 S. 1250 W. | 60.1 | 66.5 | **Noise Wall 3:** 8-ft to 16-ft wall provides at least a 5 dBA reduction |
| 129 | 1657 S. 1250 W. | 57.3 | 65.3 | **Noise Wall 4:** 14-ft to 16-ft wall provides at least a 5 dBA reduction |
| 132 | 1283 W. 1700 S. | 67.1 | 68.2 | None [1] |
| 134 | 1217 W. 1625 S. | 56.6 | 65.0 | **Noise Wall 4:** 10-ft to 16-ft wall provides at least a 5 dBA reduction |

| Receiver No. | Address | Existing Noise (dBA) | Alternative D Noise without Mitigation (dBA) | Mitigation |
|---|---|---|---|---|
| 137 | 1261 W. 1700 S. | 67 | 68.6 | None [1] |
| 139 | 1203 W. 1625 S. | 56.7 | 64.9 | **Noise Wall 4:** 10-ft to 16-ft wall provides at least a 5 dBA reduction |
| 143 | 1187 W. 1625 S. | 56.8 | 65.1 | **Noise Wall 4:** 10-ft to 16-ft wall provides at least a 5 dBA reduction |
| 146 | 1171 W. 1625 S. | 57.3 | 65.2 | **Noise Wall 4:** 10-ft to 16-ft wall provides at least a 5 dBA reduction |
| 151 | 1155 W. 1625 S. | 56.9 | 65.1 | **Noise Wall 4:** 12-ft to 16-ft wall provides at least a 5 dBA reduction |
| 154 | 1638 S. 1100 W. | 56.1 | 64.4 | None [2] |
| 155 | 1654 S. 1100 W. | 59.1 | 67.2 | **Noise Wall 4:** 12-ft to 16-ft wall provides at least a 5 dBA reduction |
| 169 | 1010 W. 1700 S. (8 apartments) | 66.1 | 71.1 | **Noise Wall 5:** 6-ft to 16-ft wall provides at least a 5 dBA reduction to 8 receivers |
| 171 | 1622 S. 1000 W. | 61.6 | 67.5 | None [1] |
| 172 | 1654 S. 1000 W. | 64.9 | 70.7 | None [1] |

* The noise level was determined to be close enough to the threshold of 70 dBA for the consideration of noise abatement for businesses and would be considered an impact

1 Noise wall ineffective because of driveway access

2 Noise wall cannot achieve 5 dBA reduction

Noise Wall 1 is not discussed because it does not meet the UDOT Noise Abatement policy.

Noise Wall 2 (Receiver 98)

As seen in Table 4-15, a noise wall ranging from 12-ft to 16-ft in height would be effective for noise mitigation, would be within the cost limit, and would provide at least a 5 dBA reduction for the front-row receiver at 1656 South Marilyn Drive. A noise wall is recommended at this location.

**Table 4-15. Results of Noise Wall 2 Analysis.**

| Wall Height (ft) | Wall Length (ft) | Total Cost of Noise Wall | Number of benefited receivers* | Cost per benefited receiver | Average Noise reduction in area (dBA) | 5 dBA Reduction for Majority of Front Row Receivers |
|---|---|---|---|---|---|---|
| 6 | 134 | $8,400 | 0 | $8,400 | 3.6 | No |
| 8 | 134 | $11,200 | 0 | $11,200 | 4.2 | No |
| 10 | 134 | $14,000 | 0 | $14,000 | 4.8 | No |
| 12 | 134 | $16,800 | 1 | $16,800 | 5.2 | Yes |
| 14 | 134 | $19,600 | 1 | $19,600 | 5.3 | Yes |
| 16 | 134 | $22,400 | 1 | $22,400 | 5.5 | Yes |

*A benefited receiver is any impacted or non-impacted receiver that gets a noise reduction of 5 dBA or more as a result of the noise barrier.
Highlighted rows in blue indicate wall heights that meet requirements of the UDOT Noise Abatement Policy.

2000 WEST
SYRACUSE ROAD
(1700 SOUTH)
Proposed Town
Center
Founders
Park
BANBURY
DRIVE
Children's
Tea Parties
Paul's Auto
Repair
Thurgood
Plumbing
Kano
&
Sons
Maverik
Wells Fargo
Family
Car
Sales
Syracuse Museum
& Cultural Center
"A" Insurance
Agencies Inc.
Heritage Lane
Comm. Plaza
J. Kelly
Hansen
Financial
Planning
Quilt School
Automatic
Transmission
Service
ALLISON
WAY
Centennial
Park
HERITAGE LANE
MARILYN DRIVE
NOISE WALL 1
NOISE WALL 2
NOISE WALL 3
NOISE WALL 4
NOISE WALL 5
1250 WEST
1100 WEST
1000 WEST
LDS
Church
Jimmy Dangeloff's
Ristorante
Darker Image
Tanning
Available
7-11
SYRACUSE ROAD
(1700 SOUTH)
Barnes
Banking
Walgreens
ALLISON
WAY
1475 WEST

LEGEND:

- POTENTIAL RELOCATION
- RECOMMENDED NOISE WALL
- NOISE WALLS CONSIDERED THAT DO NOT MEET NOISE POLICY
- EXISTING RIGHT-OF-WAY

100 0 50 100 200

FIGURE 4-6
ALTERNATIVE C
NOISE WALL MITIGATION

DGN TAG: G:\2003\0306-073 Syracuse Road\2445.06\Environmental\Figures\Ch-4\4-6.alt C noise wallmit.dgn 12/27/2005 09:44:26 AM carla


LEGEND:

- POTENTIAL RELOCATION
- RECOMMENDED NOISE WALL
- NOISE WALLS CONSIDERED THAT DO NOT MEET NOISE POLICY
- EXISTING RIGHT-OF-WAY

100 0 50 100 200

FIGURE 4-7
ALTERNATIVE D
NOISE WALL MITIGATION

Noise Wall 3 (Receivers 103, 106, 109, 113, & 126)

As seen in Table 4-16, a noise wall ranging from 8-ft to 16-ft in height would be effective for noise mitigation, would be within the cost limit, and would provide a 5 dBA reduction for the majority of the nine front-row receivers.

**Table 4-16. Results of Noise Wall 3 Analysis.**

| Wall Height (ft) | Wall Length (ft) | Total Cost of Noise Wall | Number of benefited receivers* | Cost per benefited receiver | Average Noise reduction in area (dBA) | 5 dBA Reduction for Majority of Front Row Receivers |
|---|---|---|---|---|---|---|
| 6 | 838 | $52,800 | 4 | $13,200 | 4.6 | No |
| 8 | 838 | $70,400 | 6 | $11,733 | 5.4 | Yes |
| 10 | 838 | $88,000 | 6 | $14,667 | 5.9 | Yes |
| 12 | 838 | $105,600 | 7 | $15,086 | 6.3 | Yes |
| 14 | 838 | $123,200 | 7 | $17,600 | 6.7 | Yes |
| 16 | 838 | $140,800 | 7 | $20,114 | 7.0 | Yes |

*A benefited receiver is any impacted or non-impacted receiver that gets a noise reduction of 5 dBA or more as a result of the noise barrier.
Highlighted rows in blue indicate wall heights that meet requirements of the UDOT Noise Abatement Policy.

The following receivers would be benefited by an 8-ft to 10-ft noise wall (benefited receivers are any impacted or non-impacted receiver that gets a noise reduction of 5 dBA or more as a result of the noise barrier):

- 1389 West 1625 South (Receiver 106)
- 1379 West 1625 South (Receiver 109)
- 1353 West 1625 South (Receiver 113)
- 1335 West 1625 South (Receiver 116)
- 1319 West 1625 South (Receiver 119)
- 1668 South 1250 West (Receiver 126)

The following receivers would be benefited by a 12-ft to 16-ft noise wall:

- 1659 South Marilyn Drive (Receiver 103)
- 1389 West 1625 South (Receiver 106)
- 1379 West 1625 South (Receiver 109)
- 1353 West 1625 South (Receiver 113)
- 1335 West 1625 South (Receiver 116)
- 1319 West 6125 South (Receiver 119)
- 1668 South 1250 West (Receiver 126)

A noise wall is recommended at this location.

Noise Wall 4 (Receivers 129, 134, 139, 143, 146, 151, 155)

As seen in Table 4-17, a wall ranging from 10-ft to 16-ft in height would be effective for noise mitigation, would be within the cost limit, and would provide a 5 dBA reduction for the majority of the seven front-row receivers.

**Table 4-17. Results of Noise Wall 4 Analysis.**

| Wall Height (ft) | Wall Length (ft) | Total Cost of Noise Wall | Number of benefited receivers* | Cost per benefited receiver | Average Noise reduction in area (dBA) | 5 dBA Reduction for Majority of Front Row Receivers |
|---|---|---|---|---|---|---|
| 6 | 730 | $46,000 | 0 | --- | 0.85 | No |
| 8 | 730 | $61,300 | 0 | --- | 3.2 | No |
| 10 | 730 | $76,700 | 4 | $19,175 | 4.7 | Yes |
| 12 | 730 | $92,000 | 6 | $15,333 | 5.7 | Yes |
| 14 | 730 | $107,300 | 7 | $15,329 | 6.3 | Yes |
| 16 | 730 | $122,700 | 7 | $17,529 | 6.8 | Yes |

*A benefited receiver is any impacted or non-impacted receiver that gets a noise reduction of 5 dBA or more as a result of the noise barrier.
Highlighted rows in blue indicate wall heights that meet requirements of the UDOT Noise Abatement Policy.

The following residences would be benefited by a 10-ft noise wall:

- 1217 West 1625 South (Receiver 134)
- 1203 West 1625 South (Receiver 139)
- 1187 West 1625 South (Receiver 143)
- 1171 West 1625 South (Receiver 146)

The following residences would be benefited by a 12-ft noise wall:

- 1217 West 1625 South (Receiver 134)
- 1203 West 1625 South (Receiver 139)
- 1187 West 1625 South (Receiver 143)
- 1171 West 1625 South (Receiver 146)
- 1155 West 1625 South (Receiver 151)
- 1654 South 1100 West (Receiver 155)

The following residences would be benefited by a 14-ft to 16-ft noise wall:

- 1657 South 1250 West (Receiver 129)
- 1217 West 1625 South (Receiver 134)
- 1203 West 1625 South (Receiver 139)
- 1187 West 1625 South (Receiver 143)
- 1171 West 1625 South (Receiver 146)
- 1155 West 1625 South (Receiver 151)
- 1654 South 1100 West (Receiver 155)

A noise wall is recommended at this location.

Noise Wall 5 (Receiver 169)

As seen in Table 4-18, a wall ranging from 6-ft to 16-ft in height would be effective for noise mitigation, would be within the cost limit, and would provide a 5 dBA reduction for the majority of the eight front-row receivers.

**Table 4-18. Results of Noise Wall 5 Analysis.**

| Wall Height (ft) | Wall Length (ft) | Total Cost of Noise Wall | Number of benefited receivers* | Cost per benefited receiver | Average Noise reduction in area (dBA) | 5 dBA Reduction for Majority of Front Row Receivers |
|---|---|---|---|---|---|---|
| 6 | 207 | $13,000 | 8 | $1,625 | 5.7 | Yes |
| 8 | 207 | $17,400 | 8 | $2,175 | 6.8 | Yes |
| 10 | 207 | $21,700 | 8 | $2,713 | 7.5 | Yes |
| 12 | 207 | $26,100 | 8 | $3,263 | 8.0 | Yes |
| 14 | 207 | $30,400 | 8 | $3,800 | 8.4 | Yes |
| 16 | 207 | $34,800 | 8 | $4,350 | 8.7 | Yes |

*A benefited receiver is any impacted or non-impacted receiver that gets a noise reduction of 5 dBA or more as a result of the noise barrier.
Highlighted rows indicate wall heights that meet requirements of the UDOT Noise Abatement Policy.

The eight apartments remaining at 1010 West 1700 South would be benefited by a 6-ft to 16-ft noise wall. A noise wall is recommended at this location.

### Noise Insulation of Public Use or Nonprofit Institutional Structures

The UDOT Noise Abatement Policy states that noise insulation of public use or nonprofit institutional structures may be considered as a noise abatement measure when determined reasonable and feasible. The Syracuse Museum and Cultural Center is the only structure in the project area that would qualify for this consideration. It is predicted that the peak-hour exterior sound level at the museum in the year 2030 would be approximately 68 dBA for both Alternative C and Alternative D, an increase of about 3.5 dBA over the existing sound level. The interior noise level would depend upon the listener's location in the building and the quality of the existing insulation and windows in the building. A masonry building such as this one with single glazed windows would be expected to provide a noise reduction of approximately 25 dBA for the interior of the building. This would result in an interior noise level of 43 dBA, an acceptable level for any kind of activity that requires a quiet atmosphere.

### Alternate Noise Abatement Measures

The UDOT Noise Abatement Policy states that alternative noise abatement measures may be proposed and approved by the Transportation Commission when it can be demonstrated that a severe noise impact will occur. A severe traffic noise impact is defined as a traffic noise impact that increases residential noise levels by 30 dBA or more over existing levels or the resulting noise levels are greater than or equal to 80 dBA. It is not anticipated that either of these conditions will occur by the design year.

### Construction Noise Impacts

Construction noise impacts are considered temporary and will be minimized through adherence to UDOT Standard Specification 01355 – Environmental Protection – Section 1.8 Noise and Vibration Control. Extended disruption of normal activities is not anticipated, since no one receptor is expected to be exposed to construction noise of long duration.

## 4.9.6 Mitigation

The UDOT Noise Policy requires that a public involvement process be used to make sure that the concerns of the affected communities are known to the Department and that every effort to provide noise abatement to an impacted community is taken. The UDOT Noise Policy states:

> "Noise abatement will only be considered if the combination of 75% of the "impacted front row (adjacent) receivers" and 67% overall (including front row receivers) of the "impacted residents/land owners" who receive a minimum of 5 dBA reduction, vote, through balloting, in favor of the abatement. The denominator used to calculate these percentages will be determined by the total number of ballots sent out (this number should reflect the total number of impacted receivers in each category) and not the total number of ballots returned. The balloting will be conducted **prior to** the final environmental document approval."

Construction noise impacts will be minimized by adherence to the UDOT Standard Specification 01355 - Environmental Protection - Section 1.8 Noise and Vibration Control.

Syracuse Road will be signed for the restriction of compression brakes.

### Alternative C

A 6-ft noise wall is recommended, as shown in yellow in Figure 4-6, and would be effective in mitigating noise at eight impacted residences. This wall meets cost and effectiveness requirements set forth in the UDOT Noise Abatement Policy. After mitigation and relocations, 40 remaining residences and the Syracuse Museum and Cultural Center would experience a noise level of 65 dBA or more, and three businesses would be impacted by a sound level of 70 dBA or higher, as shown in Table 4-19. The final decision whether to build the noise wall will be made prior to the Record of Decision (ROD) and will take into consideration the city's desires and results of the noise wall balloting.

**Table 4-19. Summary of Noise Mitigation (Alternative C).**

| | Residences | Businesses | Churches/ Schools/Museums | Total |
|---|---|---|---|---|
| **Noise Impacts** | 72 | 4 | 1 | 77 |
| **Potential Relocations** | 24 | 1 | 0 | 25 |
| **Mitigated** | 8 | 0 | 0 | 8 |
| **Net Impacted Receptors** (Impacts after subtracting mitigation and relocations) | 40 | 3 | 1 | **44** |

**Alternative D**

Noise walls are recommended, as shown in yellow in Figure 4-7, and would be effective in mitigating noise at a total of 17 impacted residences.

***Noise Wall 2***

A 12-ft noise wall would be effective in mitigating noise at the residence located at 1656 South Marilyn Drive.

***Noise Wall 3***

An 8-ft wall would be effective in mitigating noise at the following residences:

- 1389 West 1625 South
- 1379 West 1625 South
- 1353 West 1625 South
- 1668 South 1250 West

***Noise Wall 4***

A 10-ft wall would be effective in mitigating noise at the following residences:

- 1217 West 1625 South
- 1203 West 1625 South
- 1187 West 1625 South
- 1171 West 1625 South

***Noise Wall 5***

A 6-ft noise wall would be effective in mitigating noise at the eight impacted apartments remaining at 1010 West 1700 South.

These walls meet cost and effectiveness requirements set forth in the UDOT Noise Abatement Policy. After mitigation and potential relocations, 27 remaining residences and the Syracuse Museum and Cultural Center would experience a noise level of 65 dBA or more, and 1 business would be impacted by a sound level of 70 dBA or higher, as shown in Table 4-20. The final decision whether to build these noise walls will be made prior to the ROD and will necessitate concurrence by the city and a combination of 75% of the impacted front row (adjacent) receivers and 67% overall (including front row receivers) of the impacted residents/land owners who receive a minimum of 5 dBA reduction.

**Table 4-20. Summary of Noise Mitigation (Alternative D).**

| | Residences | Businesses | Churches/ Schools/Museums | Total |
|---|---|---|---|---|
| **Noise Impacts** | 86 | 3 | 1 | 90 |
| **Potential Relocations** | 42 | 2 | 0 | 44 |
| **Mitigated** | 17 | 0 | 0 | 17 |
| **Net Impacted Receptors** (Impacts after subtracting mitigation and relocations) | 27 | 1 | 1 | **29** |

# 4.10 WATER QUALITY

## 4.10.1 No-action Alternative

Under the No-action Alternative, drainage conditions along the corridor would remain the same. The impervious area of Syracuse Road between 1000 West and 2000 West would remain at about four acres; and with only a small amount of existing curb and gutter, much of the storm water would continue to flow off of the roadway into irrigation ditches. It is anticipated that surface and groundwater quality would be degraded. Contaminants from the roadway would continue to increase due to higher volumes of traffic along the corridor and storm water would continue to sheet flow untreated off of the roadway. Other impacts to water quality could occur as development along the corridor continues.

## 4.10.2 Alternative C and Alternative D

**Direct Impacts**

Alternatives C and D would increase the impervious area from about 4 to 12 acres. Using the rational method to predict peak runoff (according to the formula: Q=CiA, where C is a runoff coefficient, i is the rainfall intensity, and A is the subcatchment area), the increase in paved area would raise the 10-year peak flow for the project area from roughly 9 cfs to 19 cfs.

The increase in impervious area would not affect groundwater. No appreciable decline in the local groundwater supply would be expected due to reduction in local groundwater recharge. Most groundwater recharge occurs along the bases of the mountain ranges (more than eight miles away), and the addition of pavement for Syracuse Road would have little if any effect on groundwater recharge. Contaminants from the roadway would be picked up by the storm water runoff and conveyed to existing state-approved storm-drain systems. Therefore, the groundwater would not be affected by Alternatives C or D.

Storm water would be collected in curbs and gutters along the roadway and enter a new storm-drain pipe system through catch basins. Consistent with Syracuse's drainage master plan, storm water collected for the project area would be routed to two existing storm drains that have been designed to accommodate area drainage, including storm water from the planned five-lane Syracuse Road. Between about 1000 West and Allison Way, storm flows would be routed to the existing 48-inch storm drain near Allison Way, which delivers storm water south to the County Channel. Storm water collected for the roadway area between Allison Way and 2000 West would be routed to the existing 24-inch storm drain at 2000 West.

New storm-drain-system elements would be designed and managed according to requirements of the Utah Division of Water Quality (UDWQ). A Storm Water Pollution Prevention Plan (SWPPP) would be developed and incorporated into the final design plans of the project, and a Notice of Intent (NOI) form would be submitted to the UDWQ prior to construction of the project. Alternatives C and D would eliminate contaminants entering the surface water from the Syracuse Road pavement by containing them within the storm drain system and routing storm flows through existing state-approved drainage systems.

**Indirect Impacts**

After construction of Alternatives C or D, water quality would be improved with the implementation of a new storm-drain system that would comply with current Utah Department of Environmental Quality (UDEQ) and UDWQ standards. UDWQ has identified the primary contaminants of concern from storm-water runoff to include Total Dissolved Solids (TDS), sediments, and inorganics. Other potential contaminants include heavy metals, asbestos, and hydrocarbons.

### 4.10.3 Mitigation

To minimize storm water impacts to receiving waters, the following will be implemented:

- A new storm drain system will be constructed that will comply with current UDEQ and UDWQ standards.
- A SWPPP will be developed and incorporated into the final design plans of the project, and an NOI form will be submitted to the UDWQ prior to construction of the project.
- Short-term impacts to water quality will be minimized through implementation of UDOT's Best Management Practice's (BMP), found in the Temporary Erosion and Sediment Control Manual (July 1999).

## 4.11 PERMITS

### 4.11.1 No-action Alternative

The No-action Alternative would not require any permits.

### 4.11.2 Alternative C and Alternative D

Implementation of Alternatives C and D would require application for and approval of the following regulatory permits:

**Storm Water General Permit for Construction Activities**

A permit that grants authorization to discharge under the Utah Pollutant Discharge Elimination System (UPDES) is required for projects that disturb more than one acre of surface area during construction. As part of the requirements of this permit, an SWPPP would be developed and incorporated into final design. Also, a NOI form would be submitted to the UDWQ prior to any construction. Upon completion of the proposed project, a Notice of Termination (NOT) would be submitted to the same agency.

**Air Quality Approval Order**

A permit for air quality impacts during construction is required. The intent of the permit is to control fugitive dust and emissions. This permit would be obtained from UDAQ by the contractor prior to starting construction.

## 4.12 WETLANDS

Neither the No-action Alternative nor Alternatives C and D would affect wetlands or waters of the United States.

# 4.13 FLOODPLAINS

Neither the No-action Alternative nor Alternatives C and D would impact or encroach upon floodplains.

# 4.14 WILDLIFE

Neither the No-action Alternative nor Alternatives C and D would affect wildlife resources.

# 4.15 THREATENED AND ENDANGERED SPECIES

Neither the No-action Alternative nor Alternatives C or D would impact threatened and endangered species. The United States Fish and Wildlife Service (USFWS) concurred with a "no effect" determination (see February 9, 2005 letter from USFWS in Chapter 8). Threatened and endangered species letters require updating yearly and a letter has been issued from UDOT to USFWS requesting concurrence for the "no effect" determination (see February 27, 2006 letter in Chapter 8). Due to the Memorandum of Agreement between UDOT, FHWA, and USFWS signed August 30, 2005, a concurrence letter from USFWS is not required for this "no effect" determination and will likely not be received.

USFWS has also indicated that the peregrine falcon, removed from the federal list of endangered and threatened species on August 25, 1999, is still provided protection under the Migratory Bird Treaty Act. The Utah Division of Wildlife Resources (UDWR) has indicated that the only peregrine nests near the project area are the nesting platforms constructed near the edge of the Great Salt Lake in Farmington Bay, three to four miles west and southwest of the project area and the project would not affect peregrine falcons (see November 1, 2004 memorandum in Chapter 8).

## 4.15.1 Mitigation

No mitigation is required.

# 4.16 CULTURAL RESOURCES

Properties within the Syracuse Road Area of Potential Effects (APE) were inventoried for cultural resources in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended, and its implementing regulation as found in 36 CFR 800 (see Section 3.15 – Cultural Resources for additional information). A Reconnaissance Level Survey (RLS) was conducted throughout Syracuse City to identify historic structures. The RLS evaluated 194 historic structures throughout Syracuse City and identified 33 historic properties within the Syracuse Road APE. Twenty-seven of these properties are eligible under National Register of Historic Places (NRHP) Criterion C, two are eligible under both Criteria A and C, two are eligible under both Criteria B and C, and two are eligible under Criterion B. Of the 33 historic properties, five received a State Historic Preservation Office (SHPO) Rating of A, 26 received a B Rating, and two received a C

Rating. A cultural resource inventory was also conducted to evaluate the potential for archaeological or paleontological resources within the APE; none were found. The impacts to the 33 historic properties are discussed in this section.

## 4.16.1 No-action Alternative

### Direct Impacts

The No-action Alternative would not directly affect historic structures along Syracuse Road.

### Indirect Impacts

The No-action Alternative could indirectly affect some historic structures along the length of the proposed Syracuse Road project. Since the beginning of the environmental phase of this project, three historic structures (1013 West 1700 South, 1037 West, 1700 South, 1071 West 1700 South) have been removed by the property owner in conjunction with development. No additional documentation was performed prior to the destruction of these historic sites. As development continues in the area, other historic sites and homes may be removed as well.

## 4.16.2 Build Alternatives

Impacts to cultural resources are categorized as *No Effect, No Adverse Effect, and Adverse Effect* (as defined in 36 CFR 800.5). 36 CFR 800.16 (i) states that "effect means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register."

**36 CFR 800.4(d)(1)**
*No historic properties affected.* Either there are no historic properties present or there are historic properties present but the undertaking will have no effect upon them as defined in §800.16(i).
**36CFR 800.16(i)**
*Effect* means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.

### No Effect

A finding of ***No Effect*** occurs either when no historic properties are present or historic properties are present but the project would have no effect upon them as defined in 36 CFR 800.

### No Adverse Effect

A finding of ***No Adverse Effect*** occurs when the undertaking's effects do not meet the criteria of 36 CFR 800 for Adverse Effect or the undertaking is modified or conditions are imposed to avoid adverse effects. This type of impact occurs when the alternative impacts a historic property but does not completely alter the characteristics that qualify it for eligibility for the National Register.

**36 CFR 800.5(b)**
*Finding of no adverse effect*. When the undertaking's effects do not meet the criteria of paragraph (a)(1) of this section or the undertaking is modified or conditions are imposed…to ensure consistency with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines, to avoid adverse effects.

### Adverse Effect

An ***Adverse Effect*** as defined in 36 CFR 800 is found when a project may alter, directly or indirectly, any of the qualifying characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Examples of an Adverse Effect include complete use of historic structures for the road improvements, access restrictions, large percentage of property used for road right-of-way, and relocations of the residence due to closeness of the roadway.

**36 CFR 800.5(a)(1)**
*Criteria of adverse effect.* An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

### Determination of Eligibility and Finding of Effect (DOEFOE)

FHWA, through UDOT, determines the types of effects for each historic property within the project corridor. A Determination of Eligibility and Finding of Effect (DOEFOE) has been prepared by UDOT, under the direction of FHWA, and agreed to by SHPO. A copy of the approved DOEFOE is found in Chapter 8. The DOEFOE outlines the eligibility determinations and the type of effect discussed above for each historic property resulting from implementation of the build alternatives and their impacts.

A complete discussion of the impacts, avoidance alternatives, and measures to minimize harm to cultural resources is presented in Chapter 5 – Section 4(f) Evaluation, which is required when the proposed federal project uses cultural resources recommended for inclusion onto the NRHP.

### Alternative C

#### *Direct Impacts*

Table 4-21 lists the historic properties within the project limits that are recommended eligible for inclusion to the NRHP and the type of effect to each property due to Alternative C. As part of Section 106 regulations, a Notice of Adverse Effect was filed in the Davis County Clipper and Standard Examiner to allow any interested persons or groups to make comments regarding the properties with an adverse effect due to Alternative C (see March 28, 2006 Proof of Publications in Chapter 8).

**Table 4-21. Effects to Historic Properties due to Alternative C.**

| Address | Photo | SHPO Rating | Date (ca.) | Style | Effect Determination | Impact to Property |
|---|---|---|---|---|---|---|
| 1655 South 2000 West |  | A | 1926 | 20th Century Commercial | No Effect | None |
| 2057 West 1700 South |  | A | 1926 | Period Revival: Other | No Effect | None |
| 2047 West 1700 South |  | B | 1926 | 20th Century Commercial | No Effect | None |
| 1867 West 1700 South |  | B | 1950 | Ranch/Rambler | No Effect | None |
| 1862 West 1700 South |  | B | 1948 | Minimal Traditional | Adverse Effect | Direct Impact to house, total acquisition |
| 1851 West 1700 South |  | B | 1926 | Colonial Revival | No Effect | None |
| 1848 West 1700 South |  | A | 1900 | Vernacular | Adverse Effect | 12,063 ft$^2$ right-of-way take, 20% of property, total acquisition |
| 1797 West 1700 South |  | C | 1913 | 20th Century: Other | Adverse Effect | Direct Impact to house, total acquisition |
| 1792 West 1700 South |  | B | 1946 | 20th Century: Other Vernacular | No Adverse Effect | 2,821 ft$^2$ right-of-way take, 7 % of property |
| 1782 West 1700 South |  | B | 1909 | Victorian Eclectic | No Adverse Effect | 422 ft$^2$ right-of-way take, 3 % of property |
| 1752 West 1700 South |  | A | 1920 | Bungalow | No Effect | None |
| 1729 West 1700 South |  | B | 1958 | Early Ranch | Adverse Effect | Direct Impact to house, total acquisition |
| 1711 West 1700 South |  | B | 1937 | Minimal Traditional | Adverse Effect | Direct Impact to house, total acquisition |
| 1708 West 1700 South |  | B | 1910 | Bungalow Period Revival: Other | No Effect | None |
| 1698 West 1700 South |  | B | 1900 | Victorian Eclectic | No Effect | None |
| 1688 West 1700 South |  | B | 1953 | Ranch/Rambler | No Effect | None |
| 1674 West 1700 South |  | B | 1954 | Early Ranch | No Effect | None |

| Address | Photo | SHPO Rating | Date (ca.) | Style | Effect Determination | Impact to Property |
|---|---|---|---|---|---|---|
| 1661 West 1700 South |  | B | 1956 | Ranch/Rambler | Adverse Effect | Direct Impact to house, total acquisition |
| 1609 West 1700 South |  | B | 1954 | Early Ranch | Adverse Effect | Direct Impact to house, total acquisition |
| 1578 West 1700 South |  | B | 1940 | 20th Century Commercial | No Effect | None |
| 1558 West 1700 South |  | B | 1942 | Minimal Traditional | No Effect | None |
| 1557 West 1700 South |  | B | 1947 | World War II Era Cottage | Adverse Effect | Direct Impact to house, total acquisition |
| 1533 West 1700 South |  | B | 1958 | Early Ranch | Adverse Effect | Direct Impact to house, total acquisition |
| 1532 West 1700 South |  | A | 1948 | Minimal Traditional | No Effect | None |
| 1518 West 1700 South |  | B | 1913 | Bungalow | No Effect | None |
| 1412 West 1700 South |  | B | 1955 | Ranch/Rambler | No Effect | None |
| 1384 West 1700 South |  | B | 1949 | World War II Era Cottage | No Effect | None |
| 1379 West 1700 South |  | B | 1957 | Ranch/Rambler | Adverse Effect | Direct Impact to house, total acquisition |
| 1224 West 1700 South |  | B | 1951 | Ranch/Rambler | No Effect | None |
| 1206 West 1700 South |  | C | 1907 | 20th Century: Other | No Effect | None |
| 1136 West 1700 South |  | B | 1945 | Early Ranch | No Effect | None |
| 1048 West 1700 South |  | B | 1921 | Bungalow | No Adverse Effect | 1,824 $ft^2$ right-of-way take, 7% of property |
| 1654 South 1000 West |  | B | 1930 | 20th Century: Other | No Adverse Effect | 255 $ft^2$ right-of-way take, 2% of property |

### *Indirect Impacts*

Alternative C could indirectly affect historic structures along the length of the proposed Syracuse Road project in the same way as the No-action Alternative. Since the beginning of the

environmental phase of this project, three historic structures (1013 West 1700 South, 1037 West, 1700 South, 1071 West 1700 South) have been removed by the property owners in conjunction with development. No additional documentation was performed prior to the destruction of these historic sites. As development continues in the area, other historic sites and homes may be removed as well.

Alternative C would have indirect effects to some historic properties. Three historic properties on the north side of Syracuse Road are currently zoned commercial, and will not be removed if Alternative C is implemented. Only one of these historic properties is currently being used for commercial purposes. There are six additional historic properties on the north side of Syracuse Road located in areas targeted for commercial development. Thus there is the potential for eight historic properties to be removed as part of new commercial development without additional documentation of the historic properties. There is also the potential that the historic properties will remain in residential use and the vacant land developed as residential rather than commercial. Construction of Alternative C could speed up the commercial development on the south side between Allison Way and 1800 West because the homes would be removed from the deep lots.

The historic properties that remain on the north side of Syracuse Road from 1000 West to 1550 West are shown to remain as residential use; Alternative C would not indirectly affect these properties.

### Alternative D

#### *Direct Impacts*

Table 4-22 lists the historic properties along Syracuse Road that are recommended eligible for inclusion to the NRHP and the type of effect to each property due to Alternative D.

**Table 4-22. Effects to Historic Properties along Syracuse Road due to Alternative D.**

| Address | Photo | SHPO Rating | Date (ca.) | Style | Effect Determination | Impact to Property |
|---|---|---|---|---|---|---|
| 1655 South 2000 West |  | A | 1926 | 20th Century Commercial | No Effect | None |
| 2057 West 1700 South |  | A | 1926 | Period Revival: Other | No Effect | None |
| 2047 West 1700 South |  | B | 1926 | 20th Century Commercial | No Effect | None |
| 1867 West 1700 South |  | B | 1950 | Ranch/Rambler | No Effect | None |
| 1862 West 1700 South |  | B | 1948 | Minimal Traditional | Adverse Effect | Direct Impact to house, total acquisition |
| 1851 West 1700 South |  | B | 1926 | Colonial Revival | No Effect | None |

| Address | Photo | SHPO Rating | Date (ca.) | Style | Effect Determination | Impact to Property |
|---|---|---|---|---|---|---|
| 1848 West 1700 South |  | A | 1900 | Vernacular | Adverse Effect | 14,640 $ft^2$ right-of-way take, 25% of property, total acquisition |
| 1797 West 1700 South |  | C | 1913 | 20th Century: Other | No Effect | None |
| 1792 West 1700 South |  | B | 1946 | 20th Century: Other Vernacular | Adverse Effect | Direct Impact to house, total acquisition |
| 1782 West 1700 South |  | B | 1909 | Victorian Eclectic | Adverse Effect | Direct Impact to house, total acquisition |
| 1752 West 1700 South |  | A | 1920 | Bungalow | Adverse Effect | Direct Impact to house, total acquisition |
| 1729 West 1700 South |  | B | 1958 | Early Ranch | No Effect | None |
| 1711 West 1700 South |  | B | 1937 | Minimal Traditional | No Effect | None |
| 1708 West 1700 South |  | B | 1910 | Bungalow Period Revival: Other | Adverse Effect | Direct Impact to house, total acquisition |
| 1698 West 1700 South |  | B | 1900 | Victorian Eclectic | Adverse Effect | Direct Impact to house, total acquisition |
| 1688 West 1700 South |  | B | 1953 | Ranch/Rambler | Adverse Effect | Direct Impact to house, total acquisition |
| 1674 West 1700 South |  | B | 1954 | Early Ranch | Adverse Effect | Direct Impact to house, total acquisition |
| 1661 West 1700 South |  | B | 1956 | Ranch/Rambler | No Effect | None |
| 1609 West 1700 South |  | B | 1954 | Early Ranch | No Effect | None |
| 1578 West 1700 South |  | B | 1940 | 20th Century Commercial | Adverse Effect | Direct Impact to house, total acquisition |
| 1558 West 1700 South |  | B | 1942 | Minimal Traditional | Adverse Effect | Direct Impact to house, total acquisition |
| 1557 West 1700 South |  | B | 1947 | World War II Era Cottage | No Effect | None |
| 1533 West 1700 South |  | B | 1958 | Early Ranch | No Adverse Effect | 17 $ft^2$ right-of-way take, 0.08% of property |
| 1532 West 1700 South |  | A | 1948 | Minimal Traditional | Adverse Effect | Direct Impact to house, total acquisition |

| Address | Photo | SHPO Rating | Date (ca.) | Style | Effect Determination | Impact to Property |
|---|---|---|---|---|---|---|
| 1518 West 1700 South |  | B | 1913 | Bungalow | Adverse Effect | Direct Impact to house, total acquisition |
| 1412 West 1700 South |  | B | 1955 | Ranch/Rambler | Adverse Effect | Direct Impact to house, total acquisition |
| 1384 West 1700 South |  | B | 1949 | World War II Era Cottage | Adverse Effect | Direct Impact to house, total acquisition |
| 1379 West 1700 South |  | B | 1957 | Ranch/Rambler | No Effect | None |
| 1206 West 1700 South |  | B | 1951 | 20th Century: Other | Adverse Effect | Direct Impact to house, total acquisition |
| 1224 West 1700 South |  | C | 1907 | Ranch/Rambler | Adverse Effect | Direct Impact to house, total acquisition |
| 1136 West 1700 South |  | B | 1945 | Early Ranch | Adverse Effect | Direct Impact to house, total acquisition |
| 1048 West 1700 South |  | B | 1921 | Bungalow | Adverse Effect | Direct Impact to house, total acquisition |
| 1654 South 1000 West |  | B | 1930 | 20th Century: Other | No Adverse Effect | 255 $ft^2$ right-of-way take, 2% of property |

### *Indirect Impacts*

Alternative D could indirectly affect historic structures along the length of the proposed Syracuse Road project, similar to the No-action Alternative. Since the beginning of the environmental phase of this project, three historic structures (1013 West 1700 South, 1037 West, 1700 South, 1071 West 1700 South) have been removed by the property owner in conjunction with development. No additional documentation was performed prior to the destruction of these historic sites. As development continues in the area, other historic sites and homes may be removed as well.

Alternative D could have indirect effects to some historic properties. Three historic properties on the south side of Syracuse Road are currently zoned commercial. All of these historic properties are currently being used for commercial purposes. There are also six additional historic properties on the south side of Syracuse Road located in areas targeted for commercial development. Thus there is the potential for six historic properties to be removed as part of commercial development without additional documentation of the historic properties. Construction of Alternative D could speed up the commercial development; however, it is possible these properties will continue as residential properties, although additional residential development may fill in the back side of the deep lots. The historic properties that remain on the south side of Syracuse Road at 1557 West and 1533 West are shown to remain as residential use, so Alternative D would not indirectly affect these properties.

### 4.16.3 Mitigation

A Memorandum of Agreement (MOA) to resolve adverse effects to historic properties has been prepared (see **Appendix C**) and agreed upon and will be executed by UDOT, FHWA, and SHPO. The major stipulations of the MOA include:

- An Intensive Level Survey (ILS) will be prepared for the 10 properties adversely affected by the project: 1379 West 1700 South, 1533 West 1700 South, 1557 West 1700 South, 1609 West 1700 South, 1661 West 1700 South, 1711 West 1700 South, 1729 West 1700 South, 1797 West 1700 South, 1848 West 1700 South, and 1862 West 1700 South.
- Additionally, an ILS will be prepared for five additional locally-important properties that will not be adversely affected by the project: 1048 West 1700 South, 1206 West 1700 South, 1518 West 1700 South, 1782 West 1700 South, and 1655 South 2000 West.
- UDOT will provide the Certified Local Government with an opportunity to salvage materials prior to demolition of historic properties.
- Measures regarding discovery of cultural resources during construction as detailed in the MOA.
- All other measures as detailed in the MOA.

In addition to the mitigation measures in the MOA, UDOT will assess the current condition of the adversely affected properties to determine which properties may be marketed for relocation and preservation. UDOT will prepare a plan for marketing the adversely affected properties for relocation which will include an information package about the project, a distribution list of potential purchasers, and a plan and schedule for advertising, receiving, and reviewing bids. UDOT will select a bidder whose bid provides for rehabilitating and maintaining the property, has the financial resources to carry out the terms of the offer, and agrees to accept the property with deed restrictions. If an acceptable bid is not received, UDOT may demolish the property.

## 4.17 HAZARDOUS WASTE SITES

### 4.17.1 No-action Alternative

The No-action Alternative would not affect any of the identified Leaking Underground Storage Tank (LUST) sites.

### 4.17.2 Alternative C and Alternative D

Two LUST sites have been identified near the west end of the project. The Syracuse City LUST site at 1751 South 2000 West was accepted as being cleaned up to state standards on November 9, 1995. Cleanup of the Tomboy LUST site at 1722 South 2000 West is still underway. Although the groundwater flow is away from the project, the potential exists for petroleum-contaminated soils to be excavated during construction activities.

### 4.17.3 Mitigation

The construction plans and contract will describe the LUST sites with the potential of encountering contaminated material and the procedures for dealing with this material, including Standard Specification Section 01355. Any suspect material will be tested before it is used as backfill, or it will be removed to an approved disposal facility under the requirements and regulations of the Utah State Department of Environmental Quality and the United States Environmental Protection Agency.

If other hazardous waste material is encountered during construction, mitigation will be coordinated in accordance with UDOT Standard Specification 01355, which directs the Contractor to stop work and notify the Project Engineer of any discovery of hazardous material. Disposition of hazardous material then would take place under guidelines set by the Utah Department of Environmental Quality.

# 4.18 VISUAL CONDITIONS

## 4.18.1 No-action Alternative

Visual conditions in the project area under the No-action Alternative would include changes associated with implementation of current and future zoning and land use plans. Agricultural land would continue to change to residential and commercial uses (see Figures 3-1 and 3-2). The appearance of roadway features would remain mostly unchanged, with shoulders, curb and gutter, sidewalks, parkstrips, other landscape, and lighting remaining unimproved and non-continuous along the corridor. Mature vegetation would remain, other than in areas being redeveloped and/or converted to other land uses. Overhead utilities would remain unchanged.

The No-action Alternative would not be consistent with and would not facilitate implementation of Syracuse's Town Center Plan to create a recognizable Syracuse City town center core at 2000 West, having quality visual improvements and streetscape with a consistent architectural theme, color, and texture. The Syracuse Town Center Plan seeks to create an impression that is unique and recognizable and is designed to portray an arrival to Syracuse City and a Gateway to Antelope Island. Trees, historic lighting, and other street amenities (benches, landscape, and public areas) to greet visitors are anticipated. The No-action Alternative would not provide adequate area beyond the curb line to allow for streetscape, landscape, and architectural treatments to develop the desired visual effect.

## 4.18.2 Alternative C

Visual conditions in the project area associated with Alternative C would include changes associated with implementation of current and future zoning and land use plans (see Figures 3-1 and 3-2), along with changes associated with roadway improvements.

The appearance of roadway features would be modified. Pavement width would be increased as the road would be widened from two lanes to five lanes. Other roadway improvements, including paved shoulders, curb and gutter, sidewalks, parkstrips, and lighting, would be implemented and would be continuous along the corridor, enhancing the visual characteristics of the roadway.

Structures and mature vegetation would remain on the north side, while south-side structures and mature vegetation within the proposed roadway right-of-way would be removed. Overhead utilities on the north side of the roadway would remain, and overhead utilities on the south side would be relocated and reconstructed on the south side.

Alternative C is consistent with and would facilitate implementation of Syracuse's Town Center Plan to create a recognizable Syracuse City town center core at 2000 West, having quality visual

improvements and streetscape with a consistent architectural theme, color, and texture. Alternative C would provide area beyond the curb line to allow for streetscape, landscape, and architectural treatments to develop the desired visual effect.

### 4.18.3 Alternative D

Visual conditions in the project area associated with Alternative D would include changes associated with implementation of current and future zoning and land use plans (see Figures 3-1 and 3-2), along with changes associated with roadway improvements.

The appearance of roadway features would be modified. Pavement width would be increased as the road would be widened from two lanes to five lanes. Other roadway improvements, including paved shoulders, curb and gutter, sidewalks, parkstrips, and lighting, would be implemented and would be continuous along the corridor, enhancing the visual characteristics of the roadway.

Structures and mature vegetation would remain on the south side, while north-side structures and mature vegetation within the proposed roadway right-of-way would be removed. Overhead utilities on the south side of the roadway would remain, and overhead utilities on the north side would be relocated and reconstructed on the north side.

Alternative D is consistent with and would facilitate implementation of Syracuse's Town Center Plan to create a recognizable Syracuse City town center core at 2000 West, having quality visual improvements and streetscape with a consistent architectural theme, color, and texture. Alternative D would provide area beyond the curb line to allow for streetscape, landscape, and architectural treatments to develop the desired visual effect.

### 4.18.4 Mitigation

No mitigation is planned for visual changes.

## 4.19 ENERGY

This section discusses the energy requirements of the No-action Alternative and Alternatives C and D.

### 4.19.1 No-action Alternative

The No-action Alternative would not have additional energy requirements due to construction. However, due to increased congestion and stop-and-go traffic on Syracuse Road, energy requirements would increase over the long term.

### 4.19.2 Alternative C and Alternative D

Alternatives C and D would both have similar energy demands during construction. Once construction is completed, congestion would be relieved and traffic would flow more smoothly than with the No-action Alternative, thus increasing vehicle speeds and fuel efficiency. Alternatives C and D would decrease energy requirements over the long term as compared to the No-action Alternative.

### 4.19.3 Mitigation

No mitigation is planned.

## 4.20 INVASIVE SPECIES

### 4.20.1 No-action Alternative

The No-action Alternative would not provide additional opportunities for movement of invasive species through the landscape.

### 4.20.2 Alternative C and Alternative D

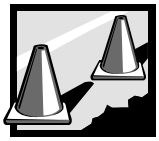
Alternatives C and D include roadway construction and would provide opportunities for the movement of invasive species.

### 4.20.3 Mitigation

To minimize the movement of invasive species, the Contractor will be required to comply with UDOT's **Special Provision 02926S - Invasive Weed Control** to minimize the spread and introduction of invasive species. Some of the measures in the Special Provision include:

- Cleaning all earth-moving equipment entering project
- Treating existing noxious weeds ten days before starting earthwork operations
- Controlling invasive weeds using pre-emergent, selective, and non-selective herbicides as appropriate

## 4.21 CONSTRUCTION AND PHASING IMPACTS



### 4.21.1 No-action Alternative

There would be no construction impacts from the implementation of the No-action Alternative.

### 4.21.2 Alternative C and Alternative D

**Social Conditions**

Area residents and other people using Syracuse Road would experience minor, temporary inconveniences due to noise, dust, and travel delays. Access to all properties would be maintained; however, there would be some temporary construction impacts to accesses for some properties.

**Economic Conditions**

Most businesses in the project area would experience temporary construction inconveniences due to dust, noise, and traffic associated with roadway construction.

**Air Quality**

Construction of Alternatives C and D would result in temporary negative effects to air quality in the project area due to increased dust and particulates.

**Noise**

Construction noise impacts are considered temporary and would be minimized through adherence to UDOT Standard Specifications for noise and vibration control. Extended disruption of normal activities is not anticipated, since no one receptor is expected to be exposed to construction noise of long duration.

**Water Quality**

Construction would require relocation or reconstruction of some features of the gravity-flow irrigation system and existing storm-drain system, including ditches, pipes, turnouts, and catch basins. During construction there is the potential for temporary soil erosion and sediment/siltation impacts to nearby irrigation ditches and canals. Construction-related erosion and sedimentation impacts would be mitigated with the use of BMPs in accordance with provisions of the Memorandum of Understanding (MOU) between UDOT and UDEQ and approved by UDWQ.

**Permits**

Construction of Alternatives C and D would require the application for and approval of a Storm Water General Permit for Construction Activities, as discussed in Section 4.11. Also, a permit for air quality impacts during construction will be obtained from UDAQ by the contractor.

**Hazardous Waste Sites**

Petroleum contamination may be encountered on some properties, as discussed in Section 4.17.

**Visual Conditions**

There would be some temporary visual impacts to the project area with the addition of construction signs, barricades, exposed earth, and construction equipment during the construction of Alternatives C and D.

**Invasive Species**

The potential exists for invasive species to be introduced or propagated in the project area due to construction activities that disturb the existing ground cover.

## 4.21.3 Mitigation

**Social Conditions**

Impacts during construction to residences will be mitigated through implementation of a traffic control plan with advance notice to those affected. Also, noise and vibration-control and dust-control measures will be used. Access to residences will be maintained.

**Economic Conditions**

Access will be maintained to all businesses during construction.

**Air Quality**

A permit for air quality impacts during construction will be obtained from the UDAQ by the contractor. Fugitive dust during construction will be mitigated and controlled in accordance with

a dust-control plan to be developed with UDAQ. This plan will include measures to minimize fugitive dust, such as application of dust suppressants and water sprays, minimizing the extent of disrupted surface areas, and restricting activities during high-wind periods.

**Noise**

The contractor will be required to abide by the UDOT Standard Specification 01355-Environmental Protection Section 1.8 - Noise and Vibration Control.

**Water Quality**

To minimize the construction impacts to surface waters, a SWPPP will be developed and incorporated into the final design plans of the project, and a NOI form will be submitted to the UDWQ prior to construction of the project. This plan will include the use of BMPs, which will help minimize temporary impacts to water resources.

**Hazardous Waste Sites**

If petroleum contamination is encountered during construction, mitigation will be coordinated in accordance with UDOT Standard Specifications Section 01355 - Environmental Protection – Section 1.3 Hazardous Material Discovered during Construction, which directs the contractor to stop work and notify the project engineer of the discovery. Disposition of the hazardous material would then take place under guidelines set by the UDEQ.

If other hazardous waste material is encountered during construction, mitigation will be coordinated in accordance with UDOT Standard Specification 01355, which directs the Contractor to stop work and notify the Project Engineer of any discovery of hazardous material. Disposition of hazardous material then would take place under guidelines set by the Utah Department of Environmental Quality.

**Visual Conditions**

Visual impacts due to construction are considered temporary, and no mitigation is required.

**Invasive Species**

The contractor will abide by UDOT's Special Provision 02926S - Invasive Weed Control to minimize the spread and introduction of invasive species. Some of the measures in the Special Provision include:

- Cleaning all earth-moving equipment before entering project
- Treating existing noxious weeds ten days before starting earthwork operations
- Controlling invasive weeds using pre-emergent, selective, and non-selective herbicides as appropriate

# 4.22 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The Syracuse Road Draft EIS is based on comprehensive transportation planning that considered the need for future mobility within the context of present and future land use development zoning regulations. The local short-term impacts and use of resources by the proposed action are consistent with the maintenance and enhancement of long-term productivity. All roadway projects require the investment or commitment of some resources found in the existing environment. Short-term refers to the immediate consequences of the project; long-term relates to its direct or secondary effects on future generations.

## 4.22.1 No-action Alternative

Short-term consequences of the No-action Alternative include traffic congestion around major intersections and along major roadways, since no new construction would take place in the project area.

## 4.22.2 Alternative C and Alternative D

Short-term consequences of Alternative C and Alternative D include:

- Relocation of residents and businesses
- Conversion of existing land use to transportation use
- Inconvenience to residents, business owners, suppliers, and employees during construction

Several long-term productivity enhancements may be realized from Alternative C and Alternative D, including:

- An efficient transportation network in a rapidly developing area that would provide better access for daily commuting and local trips
- Increased motorist convenience
- Reduced energy usage due to less delay time
- Potential for new tax base in the project area by providing transportation infrastructure to accommodate local economic development
- Enhanced employment growth for the region

# 4.23 ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION

## 4.23.1 No-action Alternative

There would be no commitment of natural, physical, human, or fiscal resources under the No-action Alternative.

### 4.23.2 Alternative C and Alternative D

Implementation of Alternative C or Alternative D would involve a commitment of a range of natural, physical, human, and fiscal resources. Land used in the construction of the proposed facility is considered an irreversible commitment during the time period that the land is used for a roadway facility. However, if a greater need arises for use of the land or if the roadway facility is no longer needed, the land could be converted to another use. At present, there is no reason to believe such a conversion will ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and roadway construction materials such as cement, aggregate, and bituminous material would be expended. Additionally, large amounts of labor and natural resources would be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply, and their use would not have an adverse effect on continued availability of these resources. Any construction would also require a substantial one-time expenditure of both state and federal funds which are not retrievable.

The commitment of these resources is based on the concept that residents in the immediate area, state, and region would benefit by the improved quality of the transportation system. These benefits consist of improved accessibility and safety, time savings, and greater availability of quality services, which are anticipated to outweigh the commitment of these resources.

## 4.24 CUMULATIVE IMPACTS

The Council on Environmental Quality (CEQ) regulations require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts result from incremental impacts of actions when added to other past, present, and reasonably foreseeable future actions (40 CFR 1508.7).

**Cumulative Impact**
**40 CFR 1508.7**
Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The geographic area addressed in this cumulative impacts analysis is generally the Syracuse City limits. The time frame of the analysis is the planning period of 2030. The actions that are considered are listed below.

**Syracuse City General Plan**

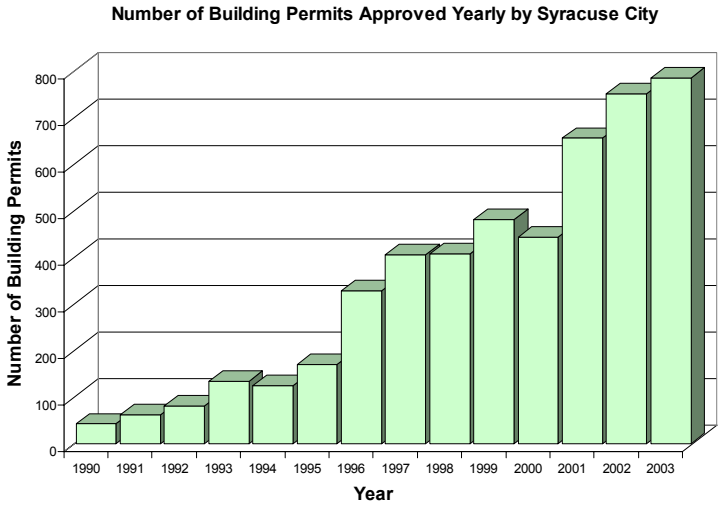
The Syracuse City General Plan provides land use planning for Syracuse City (see Figure 3-2). The General Plan shows total build-out of the city, expected to occur by 2020. For purposes of determining cumulative effects, it is assumed that the land use will be as shown in the General Plan by 2030 as a result of actions by land owners, developers, and local agencies.

**Syracuse City Town Center Plan**

The Syracuse City Town Center Plan establishes the framework for development of a unique town center area surrounding 2000 West and Syracuse Road (see Figure 3-3).

**WFRC Long Range Transportation Plan and Syracuse City Transportation Plan**

The following projects are included in these plans:




***Past Actions***

- **Syracuse Road, I-15 to 1000 West** – Widening to provide a five-lane roadway with shoulders, curb and gutter, parkstrip, and sidewalks.
- **Private Land Development** – Private land development has been increasing since 1990 and can be demonstrated by the number of building permits approved each year by Syracuse City.

***Present Projects***

At the present time, at least seven newly approved subdivisions will add a minimum of 843 new residential building lots.

***Reasonably Foreseeable Future Projects*** (All transportation projects are in the planning stage, and detailed impact information is not available.)

- **200 South/700 South** – Four projects would provide for a roadway along the 700/200 South corridor from State Street in Clearfield to the proposed Legacy Highway near 3000 West in Syracuse. These projects would widen 700 South in Clearfield, from State Street to Main Street, and 200 South in Syracuse, from 500 West to 2000 West, to four lanes. The connection from Main Street to 200 South, and the roadway from 2000 West to the Legacy Highway would have an initial construction of two lanes in a 106-ft right-of-way. It is anticipated that there would be 2.2 miles of widening and 2 miles of new construction.
- **Syracuse Road, 2000 West to 4500 West** – This project would widen SR-107 to four lanes with a two-way left-turn lane within a 106-ft right-of-way.
- **2700 South, 500 West to 3000 West** – This project would widen 2700 South to provide for a three-lane roadway within a 72-ft right-of-way.
- **500 West, Syracuse Road to Gentile Street** – This Syracuse City project would be on a new location and would provide a four-lane road with a two-way left-turn lane.
- **2000 West, Syracuse Road to 200 South** – This UDOT project would widen 2000 West to a five-lane roadway from Syracuse Road to Weber County.
- **Legacy Parkway, I-15/US-89 to Davis/Weber County Line** – This UDOT project would provide for an eight-lane freeway within a 320-ft right-of-way.
- **Private Land Development** – According to the Syracuse City current zoning map and the Syracuse City General Plan, approximately 150 acres of agricultural land would be

converted to commercial use and approximately 1250 acres of agricultural land would be converted to residential use.

This cumulative impact analysis focused on those environmental resource areas that would experience a measurable direct impact by the proposed project and, when combined with other actions in or near the project area, would result in substantive cumulative impacts. The resource elements of concern are:

- Land use
- Farmland
- Relocations
- Economic Conditions
- Cultural Resources
- Visual Conditions

While the other resource elements addressed in this EIS would experience some level of direct project impact (as previously described), they are not of concern in the context of this cumulative impact analysis because they would not experience substantive cumulative impacts. These resource elements are:

- Social Conditions
- Water Quality
- Noise

**Land Use**

The Syracuse General Plan provides for changes in existing land use, primarily conversion of agricultural use to residential or commercial use with some conversion of residential use to commercial use. Access provided by this project and other foreseeable transportation actions would serve the transportation needs of this developing area. Based on the current development trends, it is expected that future land use in Syracuse City will be very similar to that shown on the General Plan, as private developers work with Syracuse City.

**Farmland**

Existing farmland would continue to be redeveloped to other uses. Transportation projects would use some farmland, but the major impact would be residential and commercial development. The following impacts could be expected:

- Some right-of-way acquisition of farmlands from roadway widening on the following projects: Syracuse Road (2000 West to 4500 West), 2000 West, 200/700 South, and 2700 South.
- The Legacy Parkway, Hill Field Road Extension, 500 West, and portions of the 200/700 South projects are on new alignments which would require greater amounts of farmland, and may split farming parcels, making them less viable for farming operations. Most of the required farmland is in areas identified for residential or commercial development on the General Plan.

- Private development will convert most farmland within Syracuse City to residential or commercial use by 2030. As shown on the Syracuse City General Plan, most remaining farmland will be on the south and west sides of the city in the border areas of the Great Salt Lake.

**Relocations**

Future transportation projects would involve relocations as existing roads are widened and new roads are constructed. Right-of-way required to widen 700 South, 200 South, Syracuse Road west of 2000 West, 2700 South, and 2000 West would impact residences along these roadways. The number of relocations would depend on the actual design and the timing of these projects. Construction of new roadways along 200/700 South, Hill Field Road Extension, 500 West, and Legacy Parkway could involve relocations, depending on the alignment selected and the status of development at the time of each project.

Development projects would undoubtedly result in some relocations. For example, three homes within the project limits were removed by private development during the study. Additional relocations will probably occur as land changes from residential use to commercial use.

**Economic Conditions**

Alternative C or D would provide an improved east-west route, which, combined with recently completed and planned transportation projects, would provide a network to increase levels of service and improve access to businesses for both customers and the work force. The business climate would also be enhanced by population growth, which would increase the size of the primary commercial market and expand the labor pool. The result would be increased economic development consistent with the plans of Syracuse City.

**Cultural Resources**

Past and present transportation projects along with urban development could affect cultural resources by removing some historic structures within Syracuse City. The RLS prepared for this project, which evaluated 194 historic structures throughout Syracuse City, can be used by the city to identify historic homes in the vicinity of each project and develop historic contexts, and can aid planning and prioritization of restoration and preservation efforts.

**Visual Conditions**

With the implementation of many transportation projects and development taking place within the city of Syracuse, the city may begin to look and feel more urban than suburban. The change in feel of the city of Syracuse from suburban to urban has had and would continue to have varied responses from the citizens of Syracuse. This change may be seen as a positive impact to some and as a negative impact by others who moved to Syracuse when it was more of a farming community.

## 4.25 CONTEXT SENSITIVE SOLUTIONS

Alternatives were developed using input from residents/land owners along the project corridor, affected or interested federal and state agencies, Syracuse City, current and future businesses,

and special interest groups. As a result, several design related Context Sensitive Solutions (CSS) may be implemented during the design phase of the proposed project. CSS may include:

- Addition of a 10-ft wide landscape/utility area to maximize the space between the roadway and residences/businesses remaining on the corridor (in locations where the easement would not cause additional qualitative impacts such as creating a Section 4(f) use where one would not exist without the easement or causing a no adverse effect to be made an adverse effect by the addition of the easement).
- Addition of 6-ft wide sidewalks along the corridor.
- Piping open irrigation ditches.
- Lighting along the corridor (decorative lighting may require cost participation by Syracuse City).

# 4.26 COMPARISON SUMMARY OF THE PREDICTED ENVIRONMENTAL EFFECTS OF ALTERNATIVES

A comparison summary of the predicted environmental effects of the No-action Alternative and Alternatives C and D is presented in Table 4-23.

**Table 4-23. Environmental Effects Comparison Summary.**

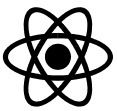
| Environmental Issue | No-action Alternative | Alternative C | Alternative D |
|---|---|---|---|
| **Land Use**  | ▪ Not consistent with the Syracuse City General Plan, which has been developed assuming that Syracuse Road would be widened to five lanes.<br>▪ Selection of the No-action Alternative would be inconsistent with planned land uses.<br>▪ No immediate conversion of agricultural, commercial, and residential properties to roadway right-of-way<br>▪ Some development may be delayed. | ▪ Consistent with the planned land uses in project area.<br>▪ Widened roadway would convert 3.0-ac residential, 1.3-ac commercial, and 2.8-ac agricultural property to roadway use.<br>▪ Parks and recreational facilities within the project study area would not be affected.<br>▪ Facilitate commercial development.<br>▪ May speed up development time frame. | ▪ Consistent with the planned land uses in project area.<br>▪ Widened roadway would convert 5.5-ac residential, 1.5-ac commercial, and 0.3-ac agricultural property to roadway use.<br>▪ Parks and recreational facilities within the project study area would not be affected.<br>▪ Facilitate commercial development.<br>▪ May speed up development time frame. |
| **Farmlands**  | ▪ No direct effect to agricultural land along the corridor.<br>▪ May slow conversion of agricultural land to residential and commercial. | ▪ Would convert 2.84 acres of agriculturally zoned land to roadway use.<br>▪ Farming operations would remain viable.<br>▪ May speed up conversion of agricultural land to residential and commercial. | ▪ Would convert 0.32 acres of agriculturally zoned land to roadway use.<br>▪ Farming operations would remain viable.<br>▪ May speed up conversion of agricultural land to residential and commercial. |

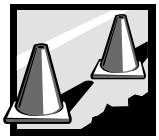
| Environmental Issue | No-action Alternative | Alternative C | Alternative D |
|---|---|---|---|
| **Social Conditions**  | ▪ Existing social conditions and trends would continue.<br>▪ Residents and roadway users would continue to be frustrated by growing traffic congestion.<br>▪ The small-town, rural character would continue to fade, leaving many residents increasingly dissatisfied.<br>▪ Many residents along the corridor would likely relocate in coming years due to traffic congestion and noise.<br>▪ Neighborhoods immediately adjacent to the roadway would likely exhibit increased residential turnover in the coming years, with associated declines in levels of familiarity and interaction among neighborhoods. | ▪ Localized social attachments would be disrupted due to relocation of some residents.<br>▪ Widening the road could reduce social interaction between north and south-side residents.<br>▪ Likelihood of roadway being a boundary for schools, churches, and other community organizations would increase, further reducing social interaction between north and south-side residents.<br>▪ Raised medians would limit left turns for some residences and businesses near 1000 West and 2000 West and would have a minor affect on traffic patterns. | |
| **Environmental Justice**  | The No-action Alternative, Alternative C, or Alternative D would not produce disproportionately high and adverse human health and environmental effects on minority or low-income populations. | | |
| **Relocations**   | ▪ No relocations would be required<br>▪ Commercial development is expected to continue and would indirectly require additional relocations. | ▪ 25 Potential Relocations (23 residences, 1 residence/business, and 1 business)<br>▪ Commercial development is expected to continue and would indirectly require additional relocations. | ▪ 44 Potential Relocations (41 residences, 1 residence/business, and 2 businesses)<br>▪ Commercial development is expected to continue and would indirectly require additional relocations. |

| Environmental Issue | No-action Alternative | Alternative C | Alternative D |
|---|---|---|---|
| **Economic Conditions**  | ▪ Conversion from rural to commercial land use would continue.<br>▪ Value of the property along the corridor would increase less rapidly.<br>▪ Area would be less desirable to commercialize, resulting in a loss of tax base for Syracuse City. | ▪ Businesses along corridor would experience economic effects associated with temporary construction inconvenience.<br>▪ Businesses should gain positive long-term effects due to increased roadway capacity, decreased traffic congestion, improved accessibility, and increased exposure to potential consumers.<br>▪ The following businesses would require relocation: J. Kelly Hansen Financial Planning/Quilt School (1797 West 1700 South) and Automatic Transmission Service (1597 West 1700 South).<br>▪ Improved mobility would facilitate development of vacant parcels within and surrounding the project area.<br>▪ New businesses would add to revenue in local economy through sales and property taxes and would provide employment opportunities.<br>▪ Raised medians would limit left turns for some businesses near the 1000 West and 2000 West intersections and would have a minor affect on traffic patterns. | ▪ Businesses along corridor would experience economic effects associated with temporary construction inconvenience.<br>▪ Businesses should gain positive long-term effects due to increased roadway capacity, decreased traffic congestion, improved accessibility, and increased exposure to potential consumers.<br>▪ The following businesses would require relocation: Children's Tea Parties (1782 West 1700 South), Paul's Auto Repair (1586 West 1700 South), and Thurgood Plumbing (1578 West 1700 South).<br>▪ Improved mobility would facilitate development of vacant parcels within and surrounding the project area.<br>▪ New businesses would add to revenue in local economy through sales and property taxes and would provide employment opportunities.<br>▪ Raised medians would limit left turns for some businesses near the 1000 West and 2000 West intersections and would have a minor affect on traffic patterns. |
| **Pedestrians and Bicyclists**  | ▪ Pedestrian mobility and safety would not be improved.<br>▪ Continuous sidewalks would not be constructed.<br>▪ Pedestrians would continue to walk along roadway shoulder in areas without sidewalks.<br>▪ Bicycle mobility and safety would remain unimproved, bicycle lanes would not be implemented. | ▪ Pedestrian mobility and safety would be improved through construction of continuous sidewalks on north and south sides of roadway.<br>▪ Bicycle mobility and safety would be improved through construction of Class II bicycle routes (striped and signed bicycle lane within shoulder) along roadway. | |

| Environmental Issue | No-action Alternative | Alternative C | Alternative D |
|---|---|---|---|
| **Air Quality**  | ▪ Poor intersection level of service (LOS), leading to deteriorated air quality.<br>▪ Increase in Vehicle Miles Traveled due to people taking alternative travel routes to avoid congestion would result in higher CO levels at those locations. | ▪ Meets the regional air quality conformity requirements.<br>▪ Not expected to cause new violations of the CO or $PM_{10}$ standard. | |
| **Noise**  | Noise Impacts:<br>• 70 residences<br>• 1 Museum<br>• 4 Businesses | Noise Impacts (after relocations and mitigation):<br>• 40 residences<br>• 1 Museum<br>• 3 Businesses | Noise Impacts (after relocations and mitigation):<br>• 27 residences<br>• 1 Museum<br>• 1 Business |
| **Water Quality**  | ▪ Substandard drainage facilities and conditions along the corridor would not be improved.<br>▪ With limited curb and gutter, much of the storm water would continue to flow off the roadway into irrigation ditches.<br>▪ Surface and groundwater quality would be degraded by the continued increase of contaminants from the roadway due to higher volumes of traffic along the corridor and continued storm water sheet flow off the roadway.<br>▪ Groundwater recharge would not be affected. | ▪ Impervious area would increase from about four to 12 acres, increasing the 10-year peak flow for the project area from roughly 9 cfs to 19 cfs.<br>▪ Groundwater recharge would not be affected, since most groundwater recharge occurs along the bases of the mountain ranges (more than eight miles away).<br>▪ Drainage facilities and conditions would be improved through the addition of continuous curb and gutter, catch basins, and storm drain pipelines.<br>▪ Contaminants from the roadway storm water would be collected and conveyed to existing state-approved storm drain systems. | |
| **Wetlands**  | No Impact | No Impact | No Impact |
| **Floodplains**  | No Impact | No Impact | No Impact |
| **Wildlife**  | No Impact | No Impact | No Impact |

| Environmental Issue | No-action Alternative | Alternative C | Alternative D |
|---|---|---|---|
| **Threatened and Endangered Species**  | No Impact | No Impact | No Impact |
| **Cultural Resources**  | Some historic structures along the corridor would be indirectly affected due to ongoing demolition without documentation or consideration of mitigation. | ▪ Some historic structures would be directly affected (impacts would be mitigated):<br>No Adverse Effect: 4<br>Adverse Effect: 10<br>▪ Some historic structures along the corridor would be indirectly affected due to ongoing demolition without documentation or consideration of mitigation. | ▪ Some historic structures would be directly affected (impacts would be mitigated):<br>No Adverse Effect: 2<br>Adverse Effect: 19<br>▪ Some historic structures along the corridor would be indirectly affected due to ongoing demolition without documentation or consideration of mitigation. |
| **Hazardous Waste Sites**  | Identified LUST sites would not be affected | Identified LUST sites should not be affected, as they are likely to be outside of the proposed roadway right-of-way limits | |

| Environmental Issue | No-action Alternative | Alternative C | Alternative D |
|---|---|---|---|
| **Visual Conditions**  | ▪ Visual changes would occur from implementation of current and future zoning and land use plans.<br>▪ Agricultural land would continue to change to residential and commercial uses.<br>▪ Appearance of roadway features would remain mostly unchanged, with shoulders, curb and gutter, sidewalks, parkstrips, other landscape, and lighting remaining unimproved and non-continuous along the corridor.<br>▪ Mature vegetation would remain, other than in areas being redeveloped and/or converted to other land uses.<br>▪ Overhead utilities would remain unchanged.<br>▪ Not consistent with and would not facilitate implementation of Syracuse's Town Center Master Plan and associated visual improvements.<br>▪ Would not provide adequate area beyond the curb line to allow for streetscape, landscape, and architectural treatments to develop desired visual effects. | ▪ Visual changes would occur from implementation of current and future zoning and land use plans.<br>▪ Agricultural land would continue to change to residential and commercial uses.<br>▪ Pavement width would be increased.<br>▪ Paved shoulders, curb and gutter, sidewalks, parkstrips, and lighting would be implemented and would be continuous along the corridor, enhancing the visual characteristics of the roadway.<br>▪ Structures and mature vegetation would remain on north side, while south-side structures and mature vegetation within the proposed roadway right-of-way would be removed.<br>▪ North-side overhead utilities would remain, south-side overhead utilities would be relocated further to the south.<br>▪ Consistent with and would facilitate implementation of Syracuse's Town Center Master Plan and associated visual improvements.<br>▪ Would provide area beyond the curb line to allow for streetscape, landscape, and architectural treatments to develop the desired visual effect. | ▪ Visual changes would occur from implementation of current and future zoning and land use plans.<br>▪ Agricultural land would continue to change to residential and commercial uses.<br>▪ Pavement width would be increased.<br>▪ Paved shoulders, curb and gutter, sidewalks, parkstrips, and lighting would be implemented and would be continuous along the corridor, enhancing the visual characteristics of the roadway.<br>▪ Structures and mature vegetation would remain on south side, while north-side structures and mature vegetation within the proposed roadway right-of-way would be removed.<br>▪ South-side overhead utilities would remain, north-side overhead utilities would be relocated further to the north.<br>▪ Consistent with and would facilitate implementation of Syracuse's Town Center Master Plan and associated visual improvements.<br>▪ Would provide area beyond the curb line to allow for streetscape, landscape, and architectural treatments to develop the desired visual effect. |
| **Energy**  | Energy requirements would increase over time due to increased congestion and stop-and-go traffic. | ▪ Energy would be required for construction.<br>▪ Traffic flow would be improved, increasing vehicle speeds and fuel efficiency.<br>▪ Energy requirements would decrease over the long term as compared to the No-action Alternative. | |
| **Invasive Species**  | No increased potential for invasive species. | Potential to introduce invasive species exists due to construction activities. This would be reduced by mitigation measures. | |

| Environmental Issue | No-action Alternative | Alternative C | Alternative D |
|---|---|---|---|
| **Construction**  | No Impact | ▪ Area residents and other people using Syracuse Road would experience minor temporary inconveniences due to noise, dust, and travel delays.<br>▪ Most businesses in the project area would experience temporary construction inconveniences due to dust, noise, and traffic associated with roadway construction.<br>▪ Construction would result in temporary negative effects on air quality in the project area due to increased dust and particulates.<br>▪ Construction noise impacts are considered temporary and would be minimized though adherence to UDOT Standard Specifications for noise and vibration control. Extended disruption of normal activities is not anticipated, since no one receptor is expected to be exposed to construction noise of long duration.<br>▪ Relocation or reconstruction of some features of the gravity-flow irrigation system and existing storm drain system would be required, including ditches, pipes, turnouts, and catch basins. During construction there is a potential for temporary soil erosion and sediment/siltation impacts to nearby irrigation ditches and canals. Construction-related erosion and sedimentation impacts would be mitigated with the use of BMPs.<br>▪ A Storm Water General Permit for Construction Activities and Air Quality Approval Order would be required during construction.<br>▪ Petroleum contaminants may be encountered on some properties, as discussed in Section 4.17.<br>▪ Temporary visual impacts would occur from construction signs, barricades, exposed earth, and construction equipment.<br>▪ The potential exists for invasive species to be introduced or propagated in the project area due to construction activities that disturb the existing ground cover. | |

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# 4.27 SUMMARY OF MITIGATION AND OTHER COMMITMENTS

## 4.27.1 Land Use

- No mitigation is required.

## 4.27.2 Farmlands

- UDOT will maintain access to existing farmlands.
- Needed right-of-way will be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
- Any potential effects of the Syracuse Road widening to water delivery or irrigation systems associated with agricultural areas will be mitigated. These facilities will be relocated and reconstructed to maintain the continuity and use of the existing systems.

## 4.27.3 Social Conditions

- Mature landscaping will be left intact whenever possible. Landscape features to remain will be identified in the final plans.
- Resident concerns about the potential for reduced auto and pedestrian safety due to increased traffic volumes and traffic speed will be addressed through placement of continuous sidewalk between 1000 West and 2000 West, use of left-turn signals at major intersections, and the use of pedestrian crosswalk lights.
- Concerns about the possibility of increased crime and delinquency will be partially alleviated through the addition of street lighting along the corridor. Certain types of lighting including decorative lighting may require cost participation by Syracuse City.

## 4.27.4 Environmental Justice

- No mitigation is required.


## 4.27.5 Relocations

- Right-of-way acquisition will occur in accordance with federal, state, and local relocation policies.
- The acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
- Relocation resources will be available to each relocated residence without discrimination.
- UDOT will evaluate the need to provide early right-of-way acquisition for those property owners who demonstrate a hardship due to this project.

### 4.27.6 Economic Conditions

- Access will be maintained to all businesses during construction.
- Where minor impacts to businesses (such as driveway reconstruction and parking lot reconfiguration) may occur, the property and business owners will be consulted during the design phase to develop solutions that will best suit the property while fulfilling the purpose and need of the project.

### 4.27.7 Pedestrians and Bicyclists Commitments

- A Class II bicycle route will be incorporated into the typical section for Syracuse Road; it provides a striped and signed lane on each side of a roadway for one-way bicycle travel.
- Continuous sidewalks will be provided on both sides of the road.
- Crosswalks for Syracuse Road will be placed at all signalized intersections.
- A school crossing will be maintained across Syracuse Road at Allison Way. The school crossing will be relocated to Marilyn Drive if a traffic signal is installed at this location. The school crossing will be coordinated with the Davis County School District.

### 4.27.8 Air Quality

- Mitigation during construction will include the use of dust-control measures per UDOT Standard Specification 1355 Environmental Protection.
- A permit for air quality impacts during construction will be obtained from UDAQ by the contractor to control fugitive dust and emissions.
- Ongoing signal time maintenance will be performed by UDOT.

### 4.27.9 Noise

- Noise walls, as shown on Figure 4-6 (Alternative C) and Figure 4-7 (Alternative D), will be built as long as 75% of front row (adjacent) receivers and 67% overall (including front row receivers) of the impacted residents/land owners who receive a minimum of 5 dBA reduction and Syracuse City are in favor of the walls according to the UDOT Noise Abatement Policy.
- Construction noise impacts will be minimized by adherence to UDOT Standard Specification 1355 - Environmental Protection – Section 1.8 Noise and Vibration Control.
- Syracuse Road will be signed for the restriction of compression brakes.

### 4.27.10 Water Quality

- A new storm drain system will be constructed that will comply with current UDEQ and UDWQ standards.
- An SWPPP will be developed and incorporated into the final design plans of the project, and an NOI form will be submitted to the UDWQ prior to construction of the project.
- Short-term impacts to water quality will be minimized through implementation of UDOT's BMPs found in the Temporary Erosion and Sediment Control Manual (July 1999).

### 4.27.11 Wetlands

- No mitigation is required.

### 4.27.12 Floodplains

- No mitigation is required.

### 4.27.13 Wildlife

- No mitigation is required.

### 4.27.14 Threatened and Endangered Species

- No mitigation is required.

### 4.27.15 Cultural Resources

- A MOA to resolve adverse effects to historic properties has been prepared (see **Appendix C**) and agreed upon and will be executed by UDOT, FHWA, and SHPO. The major stipulations of the MOA include:
  - An Intensive Level Survey (ILS) will be prepared for the 10 properties adversely affected by the project: 1379 West 1700 South, 1533 West 1700 South, 1557 West 1700 South, 1609 West 1700 South, 1661 West 1700 South, 1711 West 1700 South, 1729 West 1700 South, 1797 West 1700 South, 1848 West 1700 South, and 1862 West 1700 South.
  - Additionally, an ILS will be prepared for five additional locally-important properties that will not be adversely affected by the project: 1048 West 1700 South, 1206 West 1700 South, 1518 West 1700 South, 1782 West 1700 South, and 1655 South 2000 West.
  - UDOT will provide the Certified Local Government with an opportunity to salvage materials prior to demolition of historic properties.
  - Measures regarding discovery of cultural resources during construction as detailed in the MOA.
  - All other measures as detailed in the MOA.
- In addition to the mitigation measures in the MOA, UDOT will assess the current condition of the adversely affected properties to determine which properties may be marketed for relocation and preservation. UDOT will prepare a plan for marketing the adversely affected properties for relocation which will include an information package about the project, a distribution list of potential purchasers, and a plan and schedule for advertising, receiving, and reviewing bids. UDOT will select a bidder whose bid provides for rehabilitating and maintaining the property, has the financial resources to carry out the terms of the offer, and agrees to accept the property with deed restrictions. If an acceptable bid is not received, UDOT may demolish the property.

### 4.27.16 Hazardous Waste

- Construction plans and contract will describe the LUST sites with the potential of encountering contaminated material and the procedures for dealing with this material, including Standard Specification 01355

- Any suspect material will be tested before it is used as backfill, or it will be removed to an approved disposal facility under local, state, and federal requirements and regulations of the UDEQ and the United States Environmental Protection Agency.
- If hazardous waste material is encountered during construction, mitigation will be coordinated in accordance with UDOT Standard Specification 01355, which directs the Contractor to stop work and notify the Project Engineer of any discovery of hazardous material. Disposition of hazardous material then would take place under guidelines set by Davis County, UDEQ, and the United State Environmental Protection Agency.

### 4.27.17 Visual Conditions

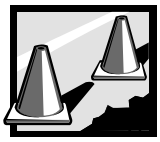
- No mitigation is planned for visual changes.

### 4.27.18 Energy

- No mitigation is planned.

### 4.27.19 Invasive Species

- The contractor will abide by UDOT's Special Provision 02926S - Invasive Weed Control to minimize the spread and introduction of invasive species. Some of the measures in the Special Provision include:
  - Cleaning all earth-moving equipment before entering project
  - Treating existing noxious weeds ten days before starting earthwork operations
  - Controlling invasive weeds using pre-emergent, selective, and non-selective herbicides as appropriate



### 4.27.20 Construction

- **Social Conditions** – Impacts during construction to residences will be mitigated through implementation of a traffic control plan with advance notice to those affected. Also, noise and vibration control and dust control measures will be used. Access to residences will be maintained.
- **Economic Conditions** – Access will be maintained to all businesses during construction.
- **Air Quality** – A permit for air quality impacts during construction will be obtained from the UDAQ by the contractor. Fugitive dust during construction will be mitigated and controlled in accordance with a dust-control plan to be developed with UDAQ. This plan will include measures to minimize fugitive dust, such as application of dust suppressants and water sprays, minimizing the extent of disrupted surface areas, and restricting activities during high wind periods.
- **Noise** – The contractor will be required to abide by the UDOT Standard Specification 01355 – Environmental Protection – Section 1.8 Noise and Vibration Control.
- **Water Quality** – To minimize the construction impacts to surface waters, a SWPPP will be developed and incorporated into the final design plans of the

project, and a NOI form will be submitted to the UDWQ prior to construction of the project. This plan will include the use of BMPs, which will help minimize temporary impacts to water resources.

- **Hazardous Waste Sites** – If petroleum contamination is encountered during construction, mitigation will be coordinated in accordance with UDOT Standard Specification 01355 – Environmental Protection Section 1.3 Hazardous Material – Discovered during Construction which directs the contractor to stop work and notify the project engineer of the discovery. Disposition of the hazardous material will then take place under guidelines set by the Davis County, UDEQ, and the United States Environmental Protection Agency.
- **Visual Conditions** – Visual impacts due to construction are considered temporary, and no mitigation is required.
- **Invasive Species** – The contractor will abide by UDOT's Special Provision 02926S - Invasive Weed Control to minimize the spread and introduction of invasive species. Some of the measures in the Special Provision include: cleaning all earth-moving equipment before entering project, treating existing noxious weeds ten days before starting earthwork operations, and controlling invasive weeds using pre-emergent, selective, and non-selective herbicides as appropriate.

### 4.27.21 Context Sensitive Solutions

- Addition of a 10-ft wide landscape/utility area to maximize the space between the roadway and residences/businesses remaining on the corridor (in locations where the easement would not cause additional qualitative impacts such as creating a Section 4(f) use where one would not exist without the easement or causing a no adverse effect to be made an adverse effect by the addition of the easement).
- Addition of 6-ft wide sidewalks along the corridor.
- Piping open irrigation ditches.
- Lighting along the corridor (decorative lighting may require cost participation by Syracuse City).